**WANT TO BE A DIGITAL DETECTIVE?**
As electronic gumshoes become courtroom stars, we get the scoop on careers in computer forensics. **PAGE 27**

**SECURITY CHECK**
A group of 360 users and vendors looks to assess the IT security skills of programmers. **PAGE 8**

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APRIL 2, 2007 ■ VOL. 41 ■ NO. 14 ■ $5/COPY

# Theft of 45.6M Card Numbers Largest Heist Yet

## TJX compromise is worst on record involving the loss of personal data

BY JAIKUMAR VIJAYAN

After more than two months of refusing to reveal the size and scope of the high-profile intrusion into its systems, The TJX Companies Inc. finally disclosed details about the extent of the compromise.

In filings with the U.S. Securities and Exchange Commission last week, the company said 45.6 million credit and debit card numbers were stolen from two of its systems over a period of more than 18 months by an unknown number of intruders.


That total eclipses the 40 million records compromised in the mid-2005 breach at the former CardSystems Solutions Inc., and makes the TJX incident the worst publicly disclosed compromise involving the loss of personal card data.

In addition, personal data provided in connection with the return of merchandise without receipts by about 451,000 people in 2003 was also stolen, the filing said.

Avivah Litan, an analyst at Gartner Inc., expressed surprise at the scope of the breach. "I had heard rumors that it was bigger than CardSystems, but I was still somewhat shocked it was actually this big."

The number of stolen records "makes this the biggest card heist ever," Litan said. "It proves there are very sophisticated cybercriminals out there at large who have the potential to wreak havoc on pure-payment systems. If this isn't a wake-up call for stronger card and payment system security, I'm not sure what is."

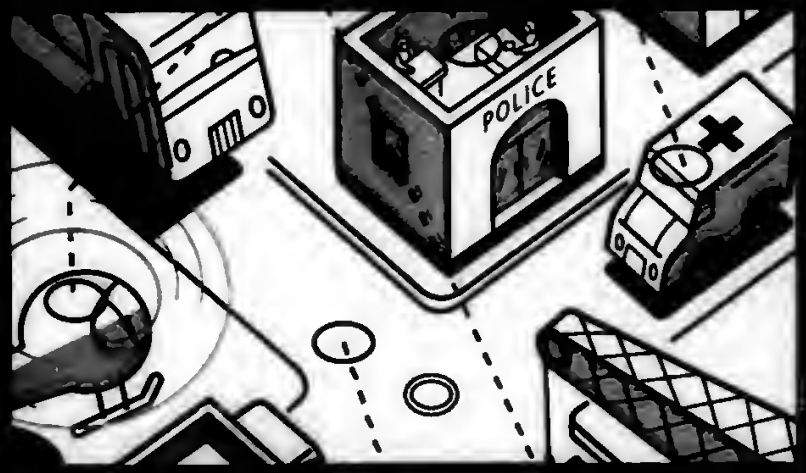
In its filing, TJX said it is in the process of contacting individuals affected by the breach.

"Given the scale and geographic scope of our business

*TJX Breach, page 16*



# GPS AND GIS: ON THE CORPORATE RADAR




Geospatial applications are boosting profits, cutting costs and sometimes even saving lives. READ HOW ON PAGE 23.

# PG&E Pushes for Adoption Of Greener Energy Options

## Offers incentives to reduce servers in data centers

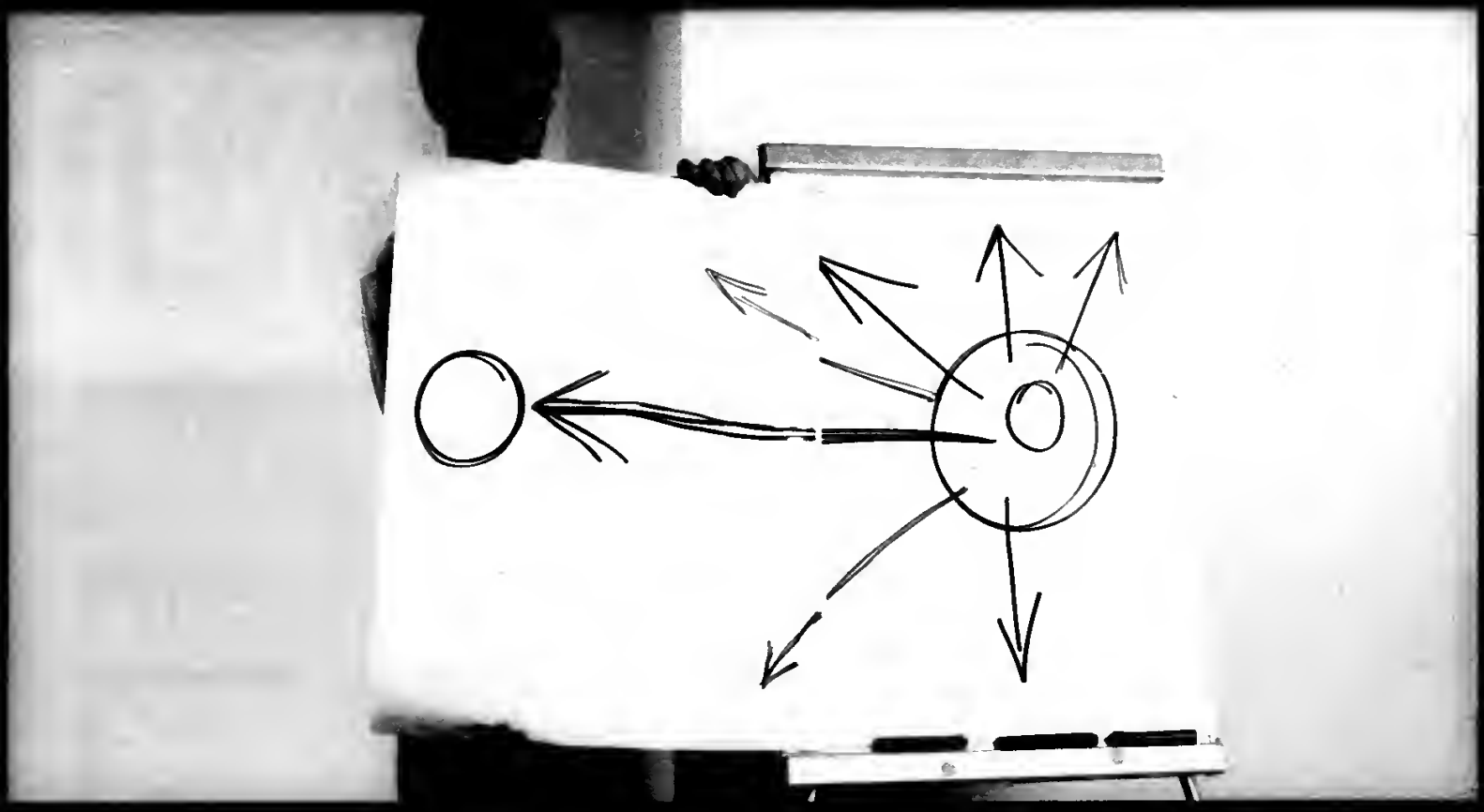
BY PATRICK THIBODEAU

The San Francisco Bay Area's naturally cool weather could help IT managers cut electricity costs. But Mark Bramfitt, who manages energy reduction programs for the high-tech sector at Pacific Gas and Electric Co., knows that most data centers are walled off from green alternatives.

"Here we are on the coast of California, and today it is 55 degrees and raining — and all the data centers I can see in my area here are running their chiller plants," Bramfitt said last week.

PG&E estimates that the data centers in its service area, which includes the Bay Area and much of Northern California, use as much as 500 megawatts of power per year. With power-reduction efforts, such as cooling systems that draw in outside air instead of using chillers, energy use could be cut by as much as half, said Bramfitt.

*PG&E, page 16*



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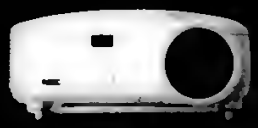

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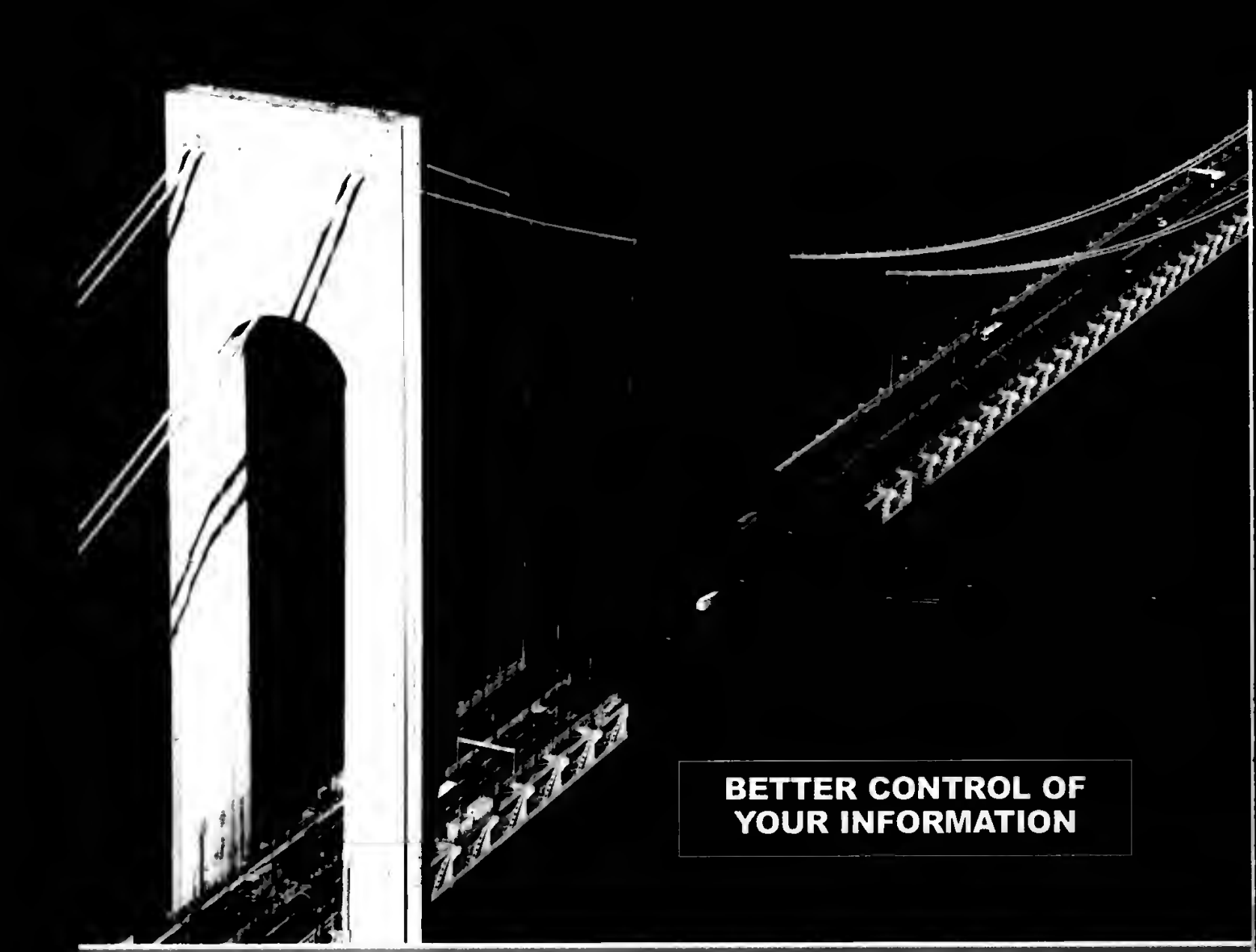

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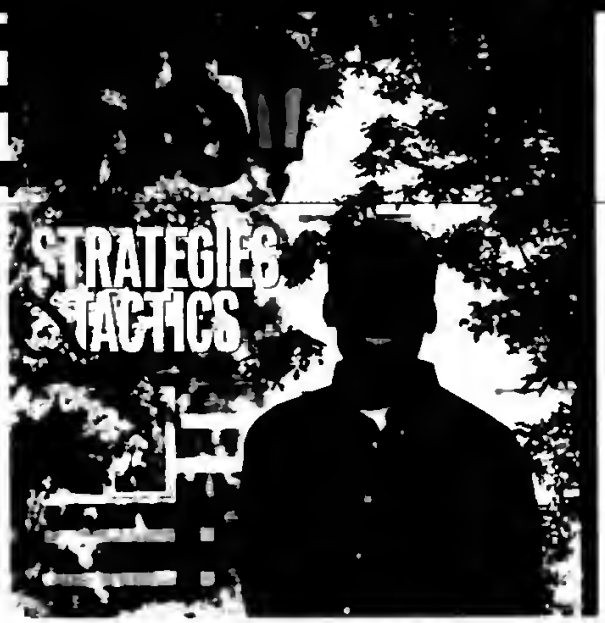


## MANAGEMENT BY PROMISES

The business world is obsessed with process, but a company is really just a bunch of people making promises to one another, says London Business School's Donald N. Sull. In this Q&A, he explains why that's the dynamic that counts. **Page 28**

04.02.07

## NEWS



**23 On the Corporate Radar.** GPS and GIS aren't just for mapmakers anymore. They're helping a diverse array of industries cut costs, boost profits and even save lives.

**27 So You Want to Be a Digital Detective?** A convergence of forces has pushed computer forensics from the back rooms of law enforcement agencies into mainstream corporate America. Here's what it takes to be an electronic gumshoe.

**29 No More Job Reviews.** Performance reviews are the fruitcake of management. Nobody really wants to give them because everybody knows that nobody wants to get them. But it doesn't have to be that way.

**30 QuickStudy: DITA.** Darwin Information Typing Architecture uses XML as the basis for designing, writing, managing and publishing many kinds of information, both in print and on the Web.

**31 Security Manager's Journal: Time Isn't Always on Our Side in IT.** This year's early daylight-saving time was a mini Y2k crisis. Mathias Thurman scrambles and comes out OK once again.

## OPINIONS



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Cray's XIE supercomputer system

### Four Steps for Battling Botnets

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www.computerworld.com/security

### More Ways to Screw Up Virtualization

**HARDWARE:** Mistakes like virtual machine "creep," security issues and failure to sell the technology's benefit to the right people internally can haunt would-be implementers of virtualization technology.
www.computerworld.com/hardware

### Adventures With Vista

**OPERATING SYSTEMS:** Columnist Sandra Gittlen documents her two days of trying to get the latest generation of Windows to work the way she wants it to.
www.computerworld.com/networking

### Why Microsoft Should Fear Apple

**MACINTOSH:** It isn't about Apple's market share or even its quarterly sales numbers, says *Computerworld.com*'s Scot Finnie. It's really all about perception.
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## AT DEADLINE

### Dell Probe Finds Financial Misdeeds

**Dell Inc. delayed the filing of its annual earnings report with the U.S. Securities and Exchange Commission after an internal investigation found evidence of misconduct and accounting errors. Dell has recently struggled with an SEC accounting investigation. The company said the probe identified "accounting errors, evidence of misconduct, and deficiencies in the financial control environment." Further details were not disclosed.**

### H-1B Filing Rush Expected Today

**An onslaught of H-1B visa applications is expected early this week. The U.S. today starts taking bids for 65,000 H-1B visas available under one cap, and 20,000 more set aside for advanced degree graduates of U.S. universities. Officials expect the total number of applications to exceed the federally mandated cap in a day or two. The visas themselves will become available on Oct. 1, the start of the federal fiscal year.**

### Security Firm Posts Windows Patch

**EEye Digital Security Inc. has released an unofficial fix for an unpatched flaw in Microsoft Corp.'s Windows operating system. The temporary patch, published late last week, fixes a flaw in the way Windows processes animated cursor files, which are used to create cartoonlike cursors. Security researchers at McAfee Inc. first reported the bug earlier last week and said that it had been used in Web-based attacks.**

### Dell Confirms Plans For Linux Systems

**Dell has confirmed plans to offer the Linux operating system on select desktop and notebook computers. The company disclosed the plan on its IdeaStorm Web site. Dell will reveal which models are included over the next few weeks but hasn't set a release schedule.**

# No Smooth Takeoff for US Airways IT Conversion

## Integration of reservation systems with America West blamed for delays

BY LINDA ROSENCRANCE

INFLEXIBLE LEGACY systems were partly to blame for glitches at US Airways Group Inc.'s self-service check-in kiosks early last month, according to an e-mail sent to frequent fliers by an executive at the company. The problems led to long lines and delayed flights at some East Coast airports.

The kiosk glitches were tied to the launch of a common reservation system for the operations of US Airways and America West Airlines, which merged two years ago under the name US Airways Group.

During the first weekend in March, US Airways was switched from Sabre Holdings Corp.'s reservation system to one Electronic Data Systems Corp. built for America West.

But when US Airways' 7 million reservations were transferred to the America West system, about 1.5 million "didn't 'sync up' correctly, and our agents had to hand-process each reservation," H. Travis Christ, the airline's vice president of sales and marketing, wrote in his March 23 e-mail. "Many systems that were otherwise ready to go became bogged down."

Mainframe-based reservation systems such as those used by US Airways and America West "are very reliable but very inflexible," Christ added. "It's as though we're fighting with one hand tied behind our back."

### Held Back by IT

Joe Beery, US Airways Group's CIO, said in an interview that there's nothing wrong with mainframes per se. "It's the framework and how the architecture of the systems is built that really hold us back," Beery said.

Both Beery and Christ acknowledged that US Airways will ultimately have to move to a more up-to-date reservation system. "We can't continue to operate forever using technology that was developed in, and ties us to, the 1970s," Christ said. But, the two executives noted, a new system that could meet all of the company's needs doesn't yet exist.

The check-in problems occurred on March 4 and 5. Most of the affected passengers were at Charlotte Douglas International Airport in Charlotte, N.C., according to US Airways officials. But travel at other locations, including Boston's Logan International Airport, was also disrupted.

"There are two issues here," said Bob Mann, an analyst at R.W. Mann & Co. in Port Washington, N.Y. "One issue is migration from one [system] to another, which was problematic. The other is the functionality of legacy systems vs. new-generation systems."

Like Beery and Christ, Mann said no replacement systems are available now that could meet all the reservation needs of a large airline. "If one existed, everyone would be standing in line for it," he said.

Henry Harteveldt, an analyst at Forrester Research Inc., said both Sabre and EDS have modernized their systems to some degree to make use of service-oriented architecture and Web services technologies. But the systems still aren't as flexible as airlines would like, he added. ▸

A turbulent IT integration project left many US Airways jets idling on runways last month.

# Washington State, DHS May Use RFID in Licenses

BY MARC L. SONGINI


Gregoire hopes to improve security without hurting tourism

The state of Washington and the U.S. Department of Homeland Security plan to jointly develop a driver's license, likely embedded with radio frequency identification (RFID) technology, as an alternative to a passport for travel to some countries.

The state and the DHS late last month announced plans to launch a pilot program to offer drivers in Washington a license that complies with the federal Western Hemisphere Travel Initiative.

The WHTI is the government's plan for meeting one of the mandates of a bill enacted by Congress in 2004. The law requires that all travelers to and from Canada, Mexico, Central and South America, the Caribbean and Bermuda carry passports or other DHS-approved documents to verify their identity.

"This pilot project is a way to boost security at our border without hampering trade and tourism," Washington Gov. Christine Gregoire said.

The enhanced driver's licenses are expected to be available by next January. The pilot program will extend until 2009 but can be renewed, said a spokesman for Gregoire.

He added that the state and the DHS have yet to decide on the technology to be used in the license, but he noted that it will likely include RFID chips.

Use of the new license is optional for residents, the spokesman noted. "We very much understand there are folks not interested in carrying around an ID card or license with a chip," he said.

The deal with the DHS came just after Gregoire signed state legislation requiring that the privacy of ID card bearers be protected and that RFID chips include encryption capabilities to prevent skimming, or the scanning of data without the bearer's knowledge.

Gregoire's spokesman also noted that the new license will likely comply with the federal Real ID Act of 2005, which calls for the government to set guidelines to ensure the accuracy of state identification documents.

DHS officials are still developing the act's technology requirements, and a spokesman for the agency said it will use the Washington program to help it define them.

The plan for using technology such as RFID in the new licenses drew criticism from some privacy advocates.

"An RFID-laced ID card is like a beacon that can transmit personal information to anyone with the right reader device," said Katherine Albrecht, an author and consumer privacy rights advocate.

"The government is fooling itself, or trying to fool us, if it believes such a tempting target for identity theft can be kept secure," Albrecht said. ▸

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# Failed VA Contract 'an Open Checkbook'

## Report finds poor planning led to overpayments

BY JAIKUMAR VIJAYAN

A 10-YEAR, $103 million contract to create a security incident response center at the U.S. Department of Veterans Affairs had to be aborted after less than three years because of funding problems resulting from inadequate planning and poor administration.

Instead of yielding a state-of-the-art security readiness and response capability, the contract became "an open checkbook" that led to the awarding of nearly two-dozen noncompetitive task orders, as well as inflated prices, overpayments and $35 million in unaccounted-for equipment purchases.

Those are just some of the findings of an audit by VA Inspector General George Opfer of the July 2002 Central Incident Response Capability (CIRC) contract awarded to Veterans Affairs Security Team LLC (VAST).

The audit report was quietly released in late February, about two years after the contract was aborted. By 2005, the VA had already spent about $91.8 million, just $11 million less than it had planned to spend over the 10-year life of the pact, the report said.

The VAST joint venture was created just a week before the awarding of the contract. It includes six small companies led by Washington-based SecureInfo Corp. and partners SAIC Inc. and the former Compaq Computer Corp., according to the report.

SecureInfo CEO Christopher Fountain denied that VAST had been overpaid during its work for the VA.

"At no time during the review were we alerted to any such concerns" by the inspector general's office, Fountain said last week. "They never told us they had found anything" that was a cause for concern.

In fact, Fountain contended that VAST incurred "several million dollars in liability" when the contract expired because of equipment purchases and other expenses.

### Company Defends Work

"We believe that the government realized great value from the work we did perform for them," Fountain said. "We believe we [set up] one of the most advanced security operations centers in the federal government."

The report blamed many of the problems on the acquisition planning for the so-called managed security services (MSS) outsourcing component of the contract.

"Deficiencies in the planning, solicitation, evaluation of proposals, award and administration of the contract for MSS resulted in uncontrolled spending, overpayments and illegal contracting actions that resulted in the ultimate demise of the contract due to lack of funding," Opfer said in his report.

He noted that three months after the contract was awarded, the VA changed the MSS component from a fixed price deal to a so-called Indefinite Delivery Indefinite Quantity agreement. "The modification allowed VA to issue task orders to fill requests from field facilities and Office of Cyber Security for MSS at additional cost," Opfer said in the report.

Though this sort of a "cardinal change" was prohibited under the contract, it was nevertheless approved by the VA's Office of General Counsel, Opfer noted in his report.

"This made the contract an open checkbook in that it resulted in the award of 22 noncompetitive task orders valued at approximately $48.6 million, with little assurance of price reasonableness and no planned funding," the report said. At least 17 of those would have been prohibited under the original contract, Opfer said in his report.

> "At no time during the review were we alerted to any such concerns [about overpayment]. The [inspector general's office] never told us they had found anything."
>
> CHRISTOPHER FOUNTAIN, CEO, SECUREINFO CORP.

The changes increased the contract's potential value to about $250 million, according to the report.

The changing MSS requirements may have resulted in overpayments to VAST of about $3.8 million for undelivered services and an additional $4.7 million in duplicate payments.

On top of that, the auditor found no record for the VA's spending of about $35 million.

In a statement, the VA general counsel's office maintained that the modifications made to the CIRC contract were legal.

But Robert Howard, assistant secretary of IT for the VA, said that he concurred with the report's findings and has launched an inventory of equipment as recommended by Opfer.

The VA did not respond to a request for comment. ▸

# SANS Program Aims to Boost Secure IT Coding Skills

## Exams promise to better assess corporate, government programmers

BY JAIKUMAR VIJAYAN

A coalition of 360 users and vendors led by the SANS Institute last week launched a new information security skills assessment and certification program for corporate and government software programmers.

The National Secure Programming Skills Assessment (NSPSA) examinations will provide IT managers with a process for assessing the secure coding skills of their internal programmers, said Alan Paller, director of research at Bethesda, Md.-based SANS, a provider of security training and certification programs.

The program will also give companies a reliable way to measure the security skills of individuals working for their software vendors and service providers, he said.

"I can definitely see this as being very, very useful," said Kevin Jarnot, chief technology officer at The Debt Exchange Inc., a Boston-based loan sale adviser for commercial debts.

> [I would prefer to] have a vulnerability assessment done by a third party to see if we have any holes and to cover my bases that way.

Unlike certification programs, in which one can cram for a test, an assessment program can provide a better picture "about what your skills really are," Jarnot said. The SANS program would "greatly help" Debt Exchange assess the security awareness of junior software engineers and force them to write more-secure code, he said.

But such assessments must be topical and relevant, Jarnot warned. "Otherwise, it can give you a false sense of security about your security."

However, Terry Orletski, vice president of IT at The Ken Blanchard Cos., a human resources consulting firm in Escondido, Calif., said he would prefer to "have a vulnerability assessment done by a third party to see if we have any holes and to cover my bases that way." He also contended that small and midsize companies are unlikely to be willing to spend $400 "to check out what their programmers know about security."

The SANS program will initially offer four examinations, each covering specific programming languages — C/C++, Java/J2EE, Perl/PHP and .Net/ASP, Paller said. The first examinations will be offered in Washington in August for $400.

The impetus behind the security assessments comes from the need to shore up programming skills at a time when cybercriminals are increasingly exploiting application-level vulnerabilities, Paller said.

"Organized crime groups have turned their attention to computer-based crimes and are increasingly attacking weaknesses in applications," he said. "This assessment and certification program will help programmers learn what they don't know and help organizations identify programmers who have solid security skills."

The list of questions was created by experts from industry, government and academia.

The exams are being designed to test awareness of basic security issues that crop up during programming, not to measure advanced security knowledge, Paller said. The goal is to identify an individual's ability to spot coding errors and apply best practices when developing software.

Many of the test questions will require examinees to spot potential security problems using actual code samples. Test takers will be assessed using a rating scale rather than a pass or fail grade, Paller said. ▸

# BRIEFS

## Posted Code Could Be Used to Hack IE6

Software code published on the Internet last week could be used to exploit a flaw in Internet Explorer. The code exploits a recently patched flaw in the Microsoft Corp. browser. It could be used to run unauthorized software on a computer that was not updated with the latest Microsoft patches, security experts warned. Researchers at eEye Digital Security said the code targets IE6.

## SAP CEO's Expected Successor Resigns

Shai Agassi, heir apparent to SAP AG CEO Henning Kagermann, has resigned as president of the company's product and technology group. Agassi had been slated to become co-CEO of SAP upon Kagermann's planned retirement later this year. However, Kagermann had agreed to retain his position until 2009 to continue leading the company through planned new product launches.

## Cisco Buys Maker of Networking Chips

Cisco Systems Inc. has agreed to buy SpansLogic Inc., a privately held maker of network processing chips, for an undisclosed sum. Cisco said it plans to embed chips developed by SpansLogic into its switch platforms to keep up with demand for ever-faster Ethernet networking equipment. SpansLogic's 14 employees will join Cisco's data center business unit.

## Sun's Yen Shifts to Microelectronics Unit

Sun Microsystems Inc. has named David Yen, who currently heads the company's storage division, to a new post overseeing development of global microelectronics products. Yen's group is responsible for developing microelectronics for networking, cryptography and high-performance computing. Jon Benson, senior vice president of engineering for Sun's virtual storage and tape solutions business, will succeed Yen as head of the storage unit.

# ON THE MARK

HOT TECHNOLOGY TRENDS, NEW PRODUCT NEWS AND INDUSTRY BUZZ BY MARK HALL


# Touch-Screen Tech Taps Into . . .

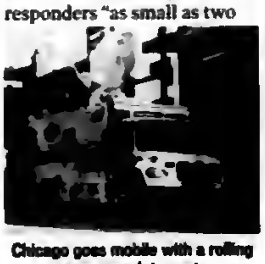
**. . . advances to overcome lingering limits.** Jordan Woods rattles off the problems people have with touch-screen systems: They crack easily, they get smudged, and they don't provide tactile feedback to users, which slows people down because they don't know whether a computer has registered their input. As a consultant at F-Origin Inc. in Morrisville, N.C., Woods has been involved in development of the company's HaptiTouch 2.0 offering, which can address two of those three problems. Woods says HaptiTouch's force-sensitive technology lets developers create applications that give users a physical sensation indicating that the machine recognizes their screen tapping. The secret, he says, is to get the entire device to shake slightly and trick the user into sensing tactile feedback when he touches the screen. Woods also claims that the force-sensitive technology lets touch screens be constructed out of more varied and durable components, so you'll see sturdier touch screens in interesting new forms, such as curved displays. In an upcoming release of HaptiTouch, Woods says, developers will be able to program devices to respond differently to taps than it does to longer presses. But he admits that F-Origin hasn't licked the smudge problem yet.


## In a crisis, contact one person . . .

**. . . or 1 million with Intelligent Notification.** Reaching people during a crisis may get easier this month when Mir3 Inc. in San Diego releases Version 2.8 of its Intelligent Notification software. According to Frank Mahdavi, Mir3's chief strategy officer, the upgrade gathers every message related to an event into a single report. It also lets users describe with keywords the kinds of incidents they want to be notified about. The software will track down people through various methods, such as phone or pager, until contact is acknowledged. Mahdavi says the software can be used for everything from alerting IT admins about server outages to updating residents of entire cities about the status of an approaching hurricane. Pricing starts at $15,000 annually.

## Data center on wheels cruises. . .

**. . . the streets of Chicago.** On Sept. 11, 2006, Chicago took its new data center out for a spin. Called the Unified Communications Vehicle (UCV), it belongs to the city's Office of Emergency Management and Communications, where Jim Argiropoulos is the managing deputy director of information services. He says the 28-foot-long, $2 million customized recreational vehicle was ordered from MorganFranklin Corp. in McLean, Va., "for a worst-case scenario of a major incident in Chicago. And it's chock-full of technology." How full? The city's entire 911 infrastructure is replicated in the UCV, which includes a satellite dish with 6Mbit/sec. bandwidth, 150 VoIP lines, 10 servers for 911 call processing, a 32-in. plotter, a CDMA cell switch and tower to support 50 cell phones within 7.2 miles of the UCV, and much more. Argiropoulos, who has worked for 27 years in 911 operations, says the UCV was designed "with a military mind-set" of putting communication command posts in the field of battle. Chris Herdon, chief technology officer at MorganFranklin, says the UCV is a one-of-a-kind data center. The company has built mobile communications systems for the military and first responders "as small as two suitcases" and as large as the UCV. "We don't cookie-cutter anything," he says.



Chicago goes mobile with a rolling emergency data center.

## Multicore CPUs cause multiple . . .

**. . . headaches for application developers.** If you're a Visual Studio developer trying to push multicore processors to the max, consider PeakStream Workstation for Microsoft Windows. According to Michael Mullany, vice president of products and marketing at PeakStream Inc. in Redwood City, Calif., the tool has a virtual machine that understands at runtime the differences between various multicore CPUs from AMD, IBM and Intel, so you don't have to account for the differences in your code. The release, set for month's end, will also sport an integrated debugger and code profiler. Pricing starts at $395 for academia and $795 for business.

**4.5M**
IDC forecast of the drop in x86 server shipments by 2010, in part because of multicore CPUs.

## Test your company's SAP apps . . .

**. . . without SAP expertise.** Linda Hayes, founder of Dallas-based Worksoft Inc., contends that customizing packaged applications like SAP requires significant scripting smarts, which means assigning your best programmers for testing. She claims that Worksoft's Certify 7.2 offers a "code-free test automation tool" for SAP. Hayes says users change SAP configurations to match their business processes, and Certify 7.2 understands how such changes can affect an SAP application. Testers use wizards to help them construct test scenarios, "removing the need for deep technical knowledge to test," asserts Hayes. Pricing is implementation-specific.

ibm.com/outwithcables

## BRIEFS

### Man Sentenced for Counterfeit Scheme

An Indiana man has been sentenced to 27 months in prison for selling more than $700,000 worth of counterfeit software on eBay, according to the U.S. Department of Justice. Courtney Smith was sentenced in an Indiana federal court for selling the counterfeit software over the Internet in violation of criminal copyright infringement laws.

### IBM, Oracle Join to Form Services Group

IBM and Oracle Corp. have joined forces to help create the Service Research & Innovation Initiative, an industry consortium focused on establishing a so-called service science discipline. The group, whose sponsors also include the Technology Professional Services Association and the Service & Support Professionals Association, hopes to encourage investment in service research and development by companies and governments.

### Circuit City Awards $775M Pact to IBM

Circuit City Stores Inc. has awarded a seven-year, $775 million contract to IBM to handle its IT operations. The contract comes in the midst of a multiyear cost-cutting effort by the electronics retailer to improve efficiency. The contract calls for IBM to provide a range of IT-related services, including data center and service desk operations, network management and desktop support. Circuit City said 50 of its employees will transfer to IBM.

### Iona Unveils SOA Management Tool

Iona Technologies Inc. has broadened its suite of Artix infrastructure software with a new tool for managing software services in a service-oriented architecture environment. Artix Registry/Repository 1.0 acts as a catalog that lists the software services available to developers in a company.

# Hospitals Are Slow to Gain Benefits From IT Spending

## But study suggests such investments eventually provide financial returns

BY HEATHER HAVENSTEIN

IT TAKES a long time for hospitals to see a return on IT investments, according to a report released last week, which may explain why the industry has long been seen as a laggard in technology spending.

"The Economics of IT and Hospital Performance" report by PricewaterhouseCoopers analyzed data from nearly 2,000 U.S. hospitals. It concluded that IT investment must reach a tipping point — usually at least two years — before operational performance improvements occur.

Before that time, hospitals incur operating costs with little near-term financial benefit, according to the report by the New York-based consulting firm.

Mark Frisse, a professor of biomedical informatics at Vanderbilt University in Nashville, said that the report "adds a dose of realism" to the issue of health IT.

OVERHAGE Hospitals have to follow through with re-engineering "to achieve value."

He noted that health care organizations must first realize that making IT effective involves much more than purchasing and putting into place an IT system.

"One of the reasons why some implementations take so long and some implementations fail is that they are viewed as data processing problems and not — as they should be — as information management problems," said Frisse, who is working to develop a regional health information organization in Tennessee.

Health care workers often don't easily adapt to new technologies because they can require an abrupt transition from a system "that seems to be fairly effective to a system of care that may in theory be better but which has not been witnessed by those who are asked to put their work — and their patients' lives — at stake," he added.

According to the report, "hospital management should not justify expensive new IT investments purely on the assumption that these investments will create huge and rapid paybacks for the organization."

Today, six of 10 hospitals are at or nearing the tipping point, the report said, and industrywide cost reductions and quality improvements from IT investment may soon begin to become more widely apparent.

J. Marc Overhage, CEO and president of the Indianapolis-based Indiana Health Information Exchange Inc. (IHIE), agreed that the ROI for health IT does take a long time to accrue, making it difficult for management to have a "good expectation that they will achieve a return."

The IHIE works with area hospitals and health care providers to exchange patient records electronically.

Overhage said that part of the problem for health care organizations is that upgrading IT systems requires changing established processes.

"Hospitals have to re-engineer processes enabled by IT and follow through with the changes that are required to achieve the value," he said. "This follow-through is at least as challenging as putting the IT into place."

# Judge Denies Diebold Request To Stop State ES&S Purchase

## Vendor contends Massachusetts erred in choice of e-voting machines

BY MARC L. SONGINI

A Massachusetts state judge last week denied a request from Diebold Election Systems to suspend the state's purchase of electronic voting machines from Election Systems & Software Inc.

Allen, Texas-based Diebold had filed a lawsuit against the commonwealth of Massachusetts on March 15 looking to invalidate the state's $9 million contract to buy handicapped-accessible AutoMark voting machines made by ES&S.

The lawsuit was filed because the company contends that it meets the contract requirements by offering "the best product and service at the most competitive price," said a Diebold spokesman.

Diebold's request for an injunction to block the execution of the contract with Omaha-based ES&S was rejected in Suffolk Superior Court in Boston, said a spokesman for Massachusetts Secretary of State Bill Galvin.

### Zero for Three

The judge also denied Diebold's request to prevent the state's legal team from viewing internal Diebold documents in connection with the case, the spokesman said.

"The suit is still there, but they went zero for three yesterday," Galvin's spokesman said, adding that no further hearings have been scheduled.

The spokesman called the Diebold lawsuit "frivolous." He said Galvin's office followed a proper process that included field testing of potential machines, including those from Diebold, during actual elections last year.

Diebold claims its e-voting machines are superior to ES&S's.

In announcing the selection of the AutoMark machines on March 5, Galvin stated, "After extensive testing and analysis for security, I have determined that the AutoMark terminal is the one that will best enable voters with disabilities to cast their ballots without the assistance of another person."

Galvin's spokesman said the devices would bring Massachusetts into compliance with the federal Help America Vote Act of 2002, which requires each voting district to use at least one handicapped-accessible machine.

The machines will be installed in Boston precincts by November 2007 and throughout the state in time for the 2008 presidential election, the spokesman said.

In a statement, Diebold President Dave Byrd said that the company "has confidence that the state's goal is to purchase the best voting machines for the lowest price possible."

He noted that more than 200 voting districts in the state currently use various Diebold machines.

The company "is confident that it has offered the electorate of Massachusetts, including blind and physically challenged voters, the best election solutions and services at the most competitive price," Byrd said.

# Financial Firms Give Mobile Banking a Boost

## U.S. customers are late adopters, but stronger security may increase use

BY MATT HAMBLEN

New deals announced last week might give mobile banking the kick in the pants it needs to become as popular in the U.S. as it is in Europe and Asia.

In the fourth quarter, Wachovia Corp. plans to launch a third-party mobile banking application for AT&T Inc. wireless customers, a Wachovia spokesman said last week, after AT&T announced that it had activated a mobile banking system for BancorpSouth Inc.

Wachovia, which has 15 million residential and business customers, already launched its own custom mobile service, Wachovia Mobile, last September. The service works on any wireless network, said Wachovia spokesman Matthew Wadley.

Built by Firethorn Holdings LLC, Wachovia's new application will be simpler to use than Wachovia Mobile and will support bill payment, which isn't possible with the existing application, Wadley added.

Atlanta-based Firethorn launched its mobile banking application last week with Tupelo, Miss.-based BancorpSouth. Other banking firms that are planning to use Firethorn's mobile system include Richmond, Va.-based SunTrust Banks Inc. and Birmingham, Ala.-based Regions Financial Corp.

With $707 billion in assets, Charlotte, N.C.-based Wachovia is by far the largest of the U.S. banks that have announced a mobile service that uses Firethorn and AT&T technologies.

Wadley said Wachovia has been interested in mobile banking for a long time and has adapted its Wachovia Mobile application to allow access by more devices. That application has up to 12,000 users per day, although there were 250,000 unique user sessions in its first month of service. "We did that without any marketing," Wadley said.

Still, adoption of mobile banking services has been slow in the U.S. over the past decade, said independent analyst Jeff Kagan.

### Security Hurdle

Americans' traditional concerns over network security could be one reason for that, speculated Wadley.

Kagan pointed out that some users will take a slow approach because of security worries, using mobile services with accounts that have just a few hundred dollars at first.

But Kagan added that "all banks and carriers will follow during the next few months and years."

AT&T spokesman Mark Siegel said the Firethorn application requires a password and will send only encrypted data over the air.

"We went into this thinking security would be a big concern, so we were ready," said Michael Lindsey, senior vice president and manager of alternative delivery services at BancorpSouth. To address such worries, the bank set up the system so that a user — or the bank's call center or AT&T — can disable the application if he loses his device.

We went into this thinking security would be a big concern, so we were ready.

Also, customer account information is not stored on the device, but rather in the bank's secure servers, which can be accessed from the device only by entering a username and a six-digit personal identification number, Lindsey said.

Hundreds of users had begun using the BancorpSouth service as of its first day last week, and many of the bank's 160,000 online banking customers are expected to use it, Lindsey said.

About half of the bank's residential customers use online banking, which the bank first offered in 1994 as a PC dial-up system and improved access to later, he added.

At Wachovia, the security available on Wachovia Mobile and the new AT&T system will offer the same level of protection that users receive while banking from desktop computers, Wadley said. "You will not be compromised using a mobile device," he said.

The bill payment functionality available on Wachovia's AT&T Firethorn offering will give the new service an advantage over the Wachovia Mobile application, but Wadley said it's likely that a bill payment feature will eventually be added to Wachovia Mobile as well.

Wadley said he expects the AT&T application to be made available free, since Wachovia doesn't charge customers for its existing Wachovia Mobile service.

AT&T won't charge customers for use of the mobile banking application, but it will collect airtime charges while the application is used, Siegel explained.

# Wikipedia Founder Rejects His 'Ignore All Rules' Mantra in New Online Project

BY HEATHER HAVENSTEIN

**Larry Sanger's answer to his former firm, Wikimedia Foundation Inc., is a new online encyclopedia called Citizendium, which was launched last week. Sanger, Citizendium's editor in chief and a cofounder of Wikipedia, talked about how the new offering differs from Wikipedia and why he decided to abandon the "ignore all rules" philosophy he championed there, in an interview with Computerworld last week.**


**Did you create Citizendium to wipe out Wikipedia?** It is very, very unlikely that our existence will lead to Wikipedia's demise. Wikipedia already has enormous momentum and an enormous group of people who really like the policies they have in place. As long as they stay within the law and within the guides of good ethical practice, I am all in favor of their continuing to grow and thrive.

**Why did you ditch the "ignore all rules" philosophy you championed at Wikipedia?** I am the author of the "ignore all rules" rule on Wikipedia. Some months after I humorously proposed that, I rejected it because other people were taking it seriously. The intent behind the rule initially was that people should not worry about getting formatting right and getting every single detail of policy under their belts before they started contributing.

It's OK if you don't bold the subject of the article. Someone else will fix it, and you will learn simply by being corrected. That is all I meant by "ignore all rules." I certainly didn't mean that you can behave like a jerk and no one will care.

**What does Citizendium offer that you can't get with Wikipedia?** The world needs something in addition to Wikipedia. The world needs a better, more reliable free encyclopedia. There is little chance that Wikipedia is going to change the policies that I think are responsible for its lack of authoritativeness.

A lot of people — and I don't mean just experts — have contributed to Wikipedia and come away with a bad taste in their mouth. The problem is that their work tends to be dismissed, and they are often treated disrespectfully. There really needs to be a place that is more inclusive. Wikipedia, by being open to all sorts of abusive and anonymous people, actually makes itself closed to people who don't want to work in that kind of atmosphere.

**What are some of Citizendium's important policies and processes?** We want to have processes in place that allow us to quickly and easily rein in bad behavior. For example, not too long ago, there was one professional contributor who took another professional contributor to task, saying that a certain article was simply bad work. One of our constables came along and erased the comment and put in a message to the effect of we have a policy of professional behavior and then linked to the policy page. If someone is obnoxious to other contributors, we will remove them, and [we] have done that already.

The most important other policy would be the real-names policy. We require all contributors to use their own real names. I think the fact that we require people to use their real names has had a beneficial effect on the level of civility in the project, and it also increases the credibility of the results.

**Who has volunteered so far to work with Citizendium?** We have distinguished tenured professors on down to very bright teenagers. It is a diverse bunch, and that is how we like it.

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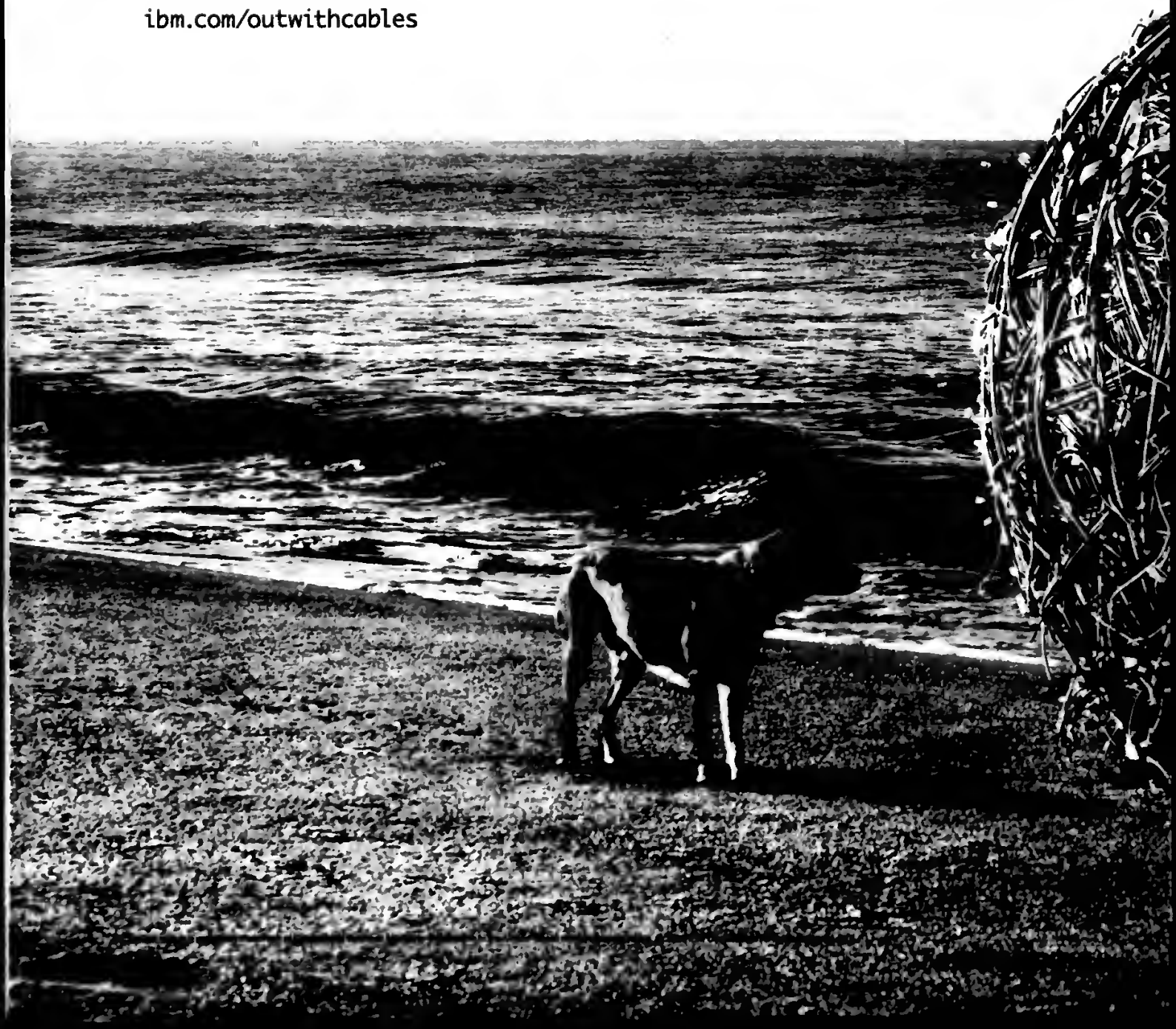

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## TJX Breach

and computer systems and the time frames involved in the computer intrusion, our investigation has required a substantial period of time to date and is not completed," the company said.

Framingham, Mass.-based TJX, the owner of T.J. Maxx, Marshalls and Bob's Stores, disclosed in January that someone had illegally accessed one of its payment systems and stolen card data from an unspecified number of customers in the U.S., Canada, Puerto Rico, the U.K. and Ireland.

At the time, TJX said it believed the intrusion took place in May 2006 but wasn't discovered until mid-December — seven months later. A few weeks after its initial disclosure of the breach, the company said that an investigation by IBM and General Dynamics Corp. had concluded that the intrusion may have taken place in July 2005.


The systems that were broken into were located at TJX's Framingham, Mass., headquarters. The theft is the worst on record involving personal data.

TJX has confirmed that its systems were first accessed in July 2005 and then on several more occasions in 2005, 2006 and even in mid-January 2007 — after the breach was discovered. However, no data appears to have been stolen after Dec. 18, when the intrusion was first noticed, it said.

The systems that were broken into, which were located at the company's headquarters, processed and stored data related to payment cards, checks and merchandise returned without receipts.

The data breach affected customers of TJX's T.J. Maxx, Marshalls, HomeGoods and A.J. Wright stores in the U.S. and Puerto Rico. Also affected were customers of its Winners and HomeSense stores in Canada and TK Maxx stores in the U.K., the company said.

The filing said the company is having difficulty determining exactly what kind of data was stolen, because a lot of the data is deleted by TJX in the normal course of business.

"In addition, the technology used by the intruder has, to date, made it impossible for us to determine the contents of most of the files we believe were stolen in 2006," the company said. It did not identify the technology.

Customer names and addresses were not included with any of the card data believed stolen from the Framingham systems, TJX said.

The company said that by April 3, 2006, it had begun to mask payment card personal identification number data, "some other portions of payment card transaction information" and check transaction data.

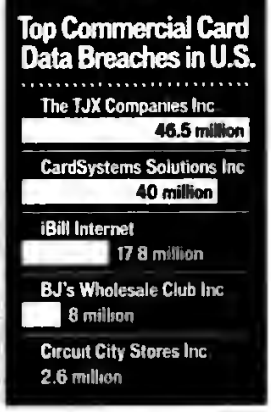
The company reported that it has spent about $5 million in connection with the breach. It warned that potential future costs are still undetermined and noted that several lawsuits have been filed against it since the breach was announced.

One TJX shareholder, the Arkansas Carpenters Pension Fund, recently sued the company for its failure to divulge more details about the breach.

TJX's disclosure came just days after six Florida residents were arrested and charged with launching a multimillion-dollar statewide credit card fraud ring using information stolen from the company. Losses experienced by Wal-Mart Stores Inc. and other retailers due to the fraud have so far totaled at least $8 million.

**DISAPPEARING DATA**

**Top Commercial Card Data Breaches in U.S.**

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## PG&E

But data center operators fear switching from a chiller to "free cooling," according to Kevin O'Brien, executive vice president at Structure Tone, a data center construction services firm in New York. Free cooling isn't the same as opening a window, he said; the outside air may still have to be regulated for moisture, for instance.

### Power Play

**PG&E's incentives to cut data center energy use:**

- Rebates for virtualization projects that lead to removal of computing equipment
- Programs to lower costs for firms that reduce electrical usage on hot summer afternoons.
- A free service through which engineers identify areas where energy can be saved

And when a system switches between free-cooling and chiller modes, there is an increased risk of a failure, he said.

O'Brien said at the AFCOM Data Center World conference in Las Vegas that IT managers need to be more aggressive about reducing power consumption and considering alternatives. "We need to police ourselves [and define] what is the green data center . . . before the government tells us what it's going to be," he said.

Mark Wood, director of infrastructure management at Highmark Inc., the parent company of Highmark Blue Cross Blue Shield in Camp Hill, Pa., said environmental issues are high on his list of concerns.

For example, he asks his vendors whether they are compliant with regulations such as the European Union's Restriction of the Use of Certain Hazardous Substances. The directive, which took effect last year, restricts waste from electronics and bars the import of lead, mercury and cadmium in electronic components.

Wood is virtualizing his environment, with the goal of reducing his 500 physical servers by half. He also asks vendors about the energy consumption of their products.

"Our kids are being challenged with all of this — we're leaving our legacy," said Wood.

### Incentives for Change

PG&E is offering incentives to get data centers to cut power consumption.

In November, the company said it would offer up to $4 million in electric rebates to companies that cut the number of physical servers they use and move to virtualization. A data center that requires less energy reduces the need for PG&E to purchase extra power during peak demands — power that may not come from clean energy sources.

Bramfitt said he has received about three dozen applications from companies to participate in the incentive program. Some use just a few servers, while others use up to 6,000. Bramfitt is shooting for an initial power savings of 4 to 5 megawatts (MW) annually.

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365 Main Inc. is among the companies participating in PG&E's Critical Peak Pricing program, which is designed to reduce energy demand.

The San Francisco-based data center operator has taken part in other PG&E power reduction programs as well. It has installed controls that automatically turn off lights, and it uses variable-frequency drives on air conditioning motors to incrementally control power usage.

But the major savings have come from a change in 365 Main's methodology for testing its 10 continuous power generators, said Miles Kelly, the company's vice president of marketing. It cut its power costs between May and October 2006 by $70,000 and reduced its 10MW load by about 1MW, Kelly said. The company conducts its monthly, week-long test during periods when PG&E expects high energy demand because of the weather, he said.

With its old methodology, 365 Main sent all of the energy produced by a generator to a load bank. The new system lets the company recycle some of the power it uses internally, thereby reducing its demand for electricity from the utility.

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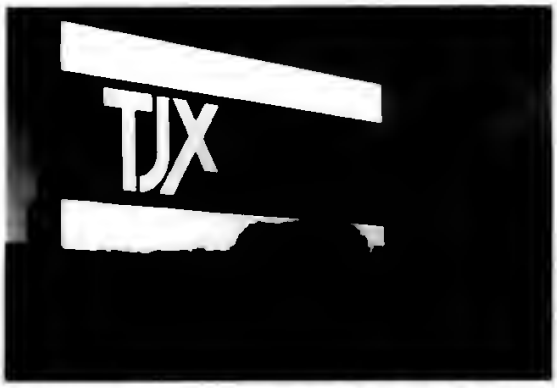


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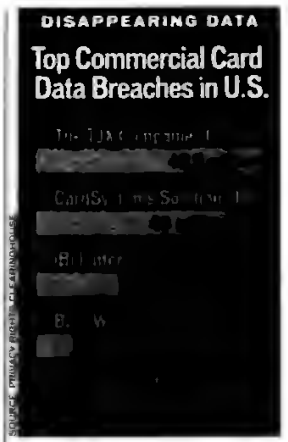

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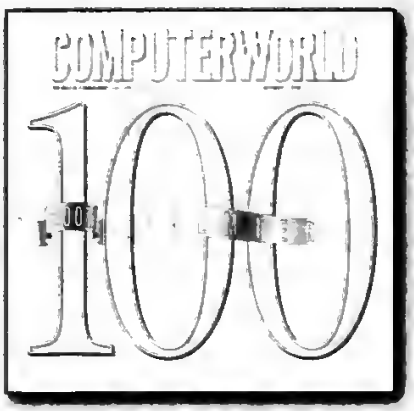
# Don't Miss Your Chance!

COMPUTERWORLD PREMIER 100 IT LEADERS 2008

## Nominate an outstanding IT leader for Computerworld's Premier 100 IT Leaders 2008 Awards Program.

**EACH YEAR,** *Computerworld*'s editors conduct a nationwide search for IT managers and executives who show technology leadership in their organizations. This prestigious awards program recognizes and honors IT professionals from a wide range of industries, drawing attention to the innovative, business-critical work they do.




**ELIGIBLE NOMINEES** include CIOs, CTOs, vice presidents, IT directors and managers from user companies, nonprofits, the computer industry and the public sector.

**HONOREES** will be announced in *Computerworld*'s Dec. 10, 2007, issue and will be our guests at the 9th Annual Premier 100 IT Leaders Conference, March 9-11, 2008, at the Rosen Shingle Creek Resort in Orlando.


## Deadline for nominations is May 31.

**Go online to nominate an IT leader at www.computerworld.com/p100nominations08.**
**Questions? Contact us by e-mail at premier100@computerworld.com.**

# GLOBAL

An International IT News Digest

## Stolen U.K. Laptop Held Data on 11,500 Children

**MANSFIELD, ENGLAND**

A U.K. NATIONAL Health Service primary care trust has launched an investigation into the theft of a laptop containing names, addresses and dates of birth of 11,500 children.

Wendy Saviour, CEO of Nottinghamshire County Teaching Primary Care Trust, said three laptops were stolen on March 21 from PCT offices at Sherwood Forest Hospital. One of them held data on patients between 8 months and 8 years old.

"We are working closely with the police to investigate this theft and to recover the stolen computers," Saviour said. "There was no health information or other details on the stolen computer. The information was protected by a password."

The PCT said it has written to nearly 10,000 affected families and set up a help line.

Gary Clark, EMEA vice president of security firm SafeNet Inc. in Belcamp, Md., said that the use of passwords alone to protect data is "woefully inadequate." He also noted that "passwords need to be reinforced with stronger authentication," such as encryption, smart cards or USB tokens.

■ TASH SHIFRIN, COMPUTERWORLD U.K.

## Dresden Seeks EU Funds for Tech Projects

**DRESDEN, GERMANY**

ONE OF Europe's leading areas for semiconductor research and manufacturing may be unable to compete globally for high-tech investors without greater financial support from the European Union, German government officials said.

The city of Dresden could lose out to high-tech clusters in Asia or the U.S. in attracting new chip-fabrication plants without more funding from Brussels, said Stephan Goessl, a spokesman for the state government of Saxony.

EU subsidies to Dresden and other cities in the former East Germany have declined as poorer countries such as Poland, the Czech Republic and Hungary have joined the trading bloc.

Until 2002, eastern German states could apply for grants that would subsidize up to 35% of the cost of high-tech projects. That percentage had dropped to 12.4% by the end of 2006 and now hovers around 11.4%, Goessl said.

Georg Milbradt, minister-president of Saxony, has been talking with EU officials in Brussels about creating an industrial development strategy that would provide funds to clusters like Dresden, Goessl said.

"We're not asking the EU to pour funds on everything, but rather to target funding on technology sectors," he said.

■ JOHN BLAU, IDG NEWS SERVICE

**GLOBAL FACT**

The percentage of U.K. firms employing more than 1,000 workers that plan to immediately implement Windows Vista

## HSBC Bank Australia Exposes Customer Data

**SYDNEY, AUSTRALIA**

MORE THAN 100 HSBC Bank Australia Ltd. customers had their banking details, names, home addresses and other personal financial information exposed late last month in a security breach by the bank's staff.

The information was contained in documents found on an early-morning, peak-hour train in Sydney, said officials of the Sydney-based financial services firm, a unit of HSBC Group in London.

A spokesman for the Office of the Federal Privacy Commissioner Australia said, "We will look into the matter and make sure procedures are in place to ensure it doesn't happen again."

An HSBC Bank Australia spokeswoman called the breach "simply a case of human error. The employee concerned has been disciplined, and the privacy commissioner has been advised of the incident," she said.

The spokeswoman did not disclose the disciplinary action taken but said that HSBC has no plans to notify customers of the breach.

"It was extremely limited data relating to 24 separate accounts," she said. "It included no sensitive information as defined by the Privacy Act. All records have been retrieved, and we're of the view no customers have been impacted."

■ SANDRA ROSSI, COMPUTERWORLD AUSTRALIA

## Capita Group in Line For £290M IT Pact

**SOUTHAMPTON, ENGLAND**

THE CITY council of Southampton, England, has selected Capita Group PLC as its preferred bidder for a 10-year IT project now valued at £290 million ($570 million U.S.).

The contract will cover IT, customer services, human resources, payroll, revenues, benefits, procurement and property services in the city. It is expected to include the transfer of 600 council staffers to Capita.

"It is worth noting that the Southampton bid has taken almost two and a half years to reach this stage," said Samad Masood, an analyst at Ovum Ltd. "In that time, the value of the deal has almost doubled from the £150 million [$295 million U.S.] that Southampton was originally expecting to pay."

A council spokeswoman acknowledged the increased value of the contract but noted that more services had been added during the tendering process. "Elements of the council wanted more investigations and other bidders to be considered," she said.

The council is expected to make a final decision on the contract in July, with the partnership starting on Oct. 1, she said.

■ TASH SHIFRIN, COMPUTERWORLD U.K.

## Intel Confirms Plan For Chinese Chip Plant

**BEIJING**

INTEL CORP. President and CEO Paul Otellini last week confirmed that the company plans to build a $2.5 billion chip manufacturing plant in China.

The plant, to be built in Dalian, is expected to begin production during the first half of 2010, Otellini said.

During a press conference last week in Beijing, Otellini said that he hopes the new plant will help Intel drive down manufacturing costs.

With capital expenditure costs generally the same around the world, Otellini said the cost-cutting will likely result from financial incentives and support from the Chinese government.

Construction on the new plant, called Fab 68, will begin later this year. The project is billed as the largest single investment by a foreign company in northeastern China.

The plant will initially produce chip sets, not the company's flagship microprocessors, Otellini said.

■ SUMNER LEMON, IDG NEWS SERVICE

*Compiled by Mike Bucken.*

## Briefly Noted

**Michael Powell, former head of the Federal Communications Commission, will lead a U.S.-based advisory board for NTT DoCoMo Inc., the Tokyo-based mobile telecommunications carrier said last week. Powell will be chairman of a board that meets twice a year with NTT DoCoMo officials to provide updates and discuss global social and economic developments.**

■ MARTYN WILLIAMS, IDG NEWS SERVICE

**Applied Materials Inc. last month opened a new production line machinery lab in Xi'an, China, to develop a range of equipment. The Santa Clara, Calif.-based company said that 65% of its orders during the first quarter of its 2007 fiscal year came from Asia. Although China generates less revenue than Taiwan, South Korea and Japan, many analysts have said China will likely grow faster than the others.**

■ DAN NYSTEDT, IDG NEWS SERVICE

**Microsoft Corp. and Tokyo-based Fuji Xerox Co. last month signed a deal to use each other's technologies. They said the move is aimed at speeding up the development of new document management systems. Under the cross-licensing agreement, each company will pay to use the other's patented technology. Financial details weren't disclosed. Microsoft has signed similar deals in recent months with NEC Corp., Seiko Epson Corp. and Toshiba Corp.**

■ JOHN BLAU, IDG NEWS SERVICE

**Hitachi Global Storage Technologies plans to close a manufacturing plant in Mexico and lay off 11% of its 40,000 workers worldwide in a bid to shore up its hard disk drive operations. The San Jose-based company projects that the move will cut costs by $300 million over the next five years. The plan is expected to be completed by the end of 2008.**

■ DAN NYSTEDT, IDG NEWS SERVICE

**European Union finance ministers have agreed on new rules to govern cross-border payment services for transactions made anywhere within its 27 member states. The directive will provide the legal framework for the Single Euro Payments Area, which will begin operating on a limited basis next year and is slated to be fully established by 2010.**

■ COMPUTERWORLD U.K. STAFF

# IBM Researcher Aims to Improve Web Access for Visually Impaired

BY TODD R. WEISS

**Chieko Asakawa**, *who has been blind since age 14, is a senior accessibility researcher at IBM's Tokyo Research Laboratory. Since joining IBM in 1985, she has worked on a variety of projects to improve system and Web accessibility for the visually impaired. Over the past year, Asakawa and four other researchers have been working to enable blind and visually impaired users to access multimedia content online, using a keyboard to control media player software. She discussed the project in an e-mail interview with* Computerworld.


**Was this project motivated by your personal situation, given that you're a visually impaired researcher and an active Internet user?** Increasingly, I've been facing difficulties where I simply could not access Web content easily. I conducted a survey and found that most of the tested Web sites with multimedia content were not accessible. I fear that if we don't take any action, it will broaden the digital gap between the sighted and the blind. Today, accessibility for static HTML has been well established. I felt there should be ways to help narrow the gap concerning multimedia content.

**Can you talk about the tool set you're developing that will provide keyboard controls for media player functions such as starting, stopping and rewinding a video?** The tool is compatible with Windows Media Player and Flash. Users only need to know a unified shortcut key operation to run video and animation. Previously, these functions could not be controlled using a keyboard, since the images that are up on the Web sites are only controllable by pointing and clicking a mouse, especially for embedded players in Web pages.

The tool is mostly written in Java and works as a stand-alone application. It gives the same experience as Internet Explorer and [can] surf any Web pages. Once a user opens a Web page, the browser automatically analyzes multimedia objects inside the page, then the browser [establishes] a connection to each multimedia object. Currently, it has adapters for [Adobe] Flash and Windows Media Player. A part of the adapters are written in C++.

**What ideas did you come up with for accessing streaming media, video and other visual content online?** First, I thought if we can provide a function to separately control volume, at least we will be able to hear multimedia and [text-to-audio] screen-reader sound. Technically, it was not easy, [but] we did not give up. Second, it's really frustrating to wait until inaccessible pages become accessible [through the work of page designers]. If we can make inaccessible pages accessible by providing external metadata, we can significantly shorten the time to access such pages. We developed a tool [that] analyzes and adapts external metadata dynamically, and it can generate accessible pages on the fly on the client side.

**What is the project's status today?** We plan to open-source this tool in the near future. Technically speaking, basic functions of the tool are almost ready to be tried out by users. But first we would like to conduct some usability tests to make sure to what extent the tool should provide information to users.

**How has the tool kit changed your use of the Internet?** It has changed it a lot. Before, I avoided pages with multimedia content. This tool has given me opportunities to access Web sites, and it made me realize that I was missing a lot of good information. It's wonderful to be able to access video and animation on the Net to broaden my horizon. But to make that truly happen, we are hoping that volunteers, content creators, developers and content providers will show their interest in creating metadata [that] can be attached to the tool to help make the user's experience of visiting the multimedia content sites more comfortable and seamless.

**What is the next step in improving access for visually impaired people?** We need to provide easier methods to author metadata to help increase the metadata, which will provide a smooth and comfortable user experience as users visit Web sites. Also, we want to provide ways to help developers to learn to check their content's accessibility easily and effectively. We are trying to make other media players controllable, such as QuickTime and RealPlayer. It will widen coverage of the tool.

DON TENNANT

# Our Next 40 Years

**WHAT were you doing 40 years ago? If you're a subscriber to the print edition of *Computerworld*, the demographic average suggests that you were nine years old, so chances are you were just doing whatever it is fourth graders do. I was a freshman in high school by then, and I don't recall doing anything particularly consequential at all.**

One of the things International Data Group founder Pat McGovern was doing 40 years ago this week was preparing to launch this publication. The inaugural issue of *Computerworld* appeared on June 14, 1967, and the front page carried some pretty cool stories. One was about the IRS making all expenses related to getting a job in the computer field tax-deductible. Another reported that IBM employees were being withdrawn from war zones in the Middle East. A third covered the recruitment scene, noting that demand for anyone with IBM System/360 experience was particularly high. Companies had so drastically underestimated the flow of the systems into the market, the report stated, that they were forced to pay "almost ridiculous" recruitment expenses to keep them running.

According to Alan Taylor, *Computerworld*'s first editor, the target readership was a computer community that had grown at a "breathtaking" rate, from 10,000 in 1957 to over 300,000 in 1967. He probably never imagined that 40 years later, the print edition of *Computerworld* would reach more than 1.25 million readers each week. And he probably never thought about what his publication would look like in 2007.

It's a tribute to McGovern's vision that he created *Computerworld* in a format that would still be so popular so many years later — that of a news tabloid. If you're reading this in print, you're reading it in the same format that your predecessors did when they opened that inaugural issue four decades ago.

Yet, if there are things that last forever, publication formats aren't one of them. And our print format is, in fact, changing.

Beginning with our special 40th anniversary issue on July 9, *Computerworld* will be published weekly in a magazine-size format. I know from speaking and corresponding with our readers over the years that many will enthusiastically welcome the change. Others will miss the format they've grown so accustomed to. But most will say it doesn't really matter — as long as the quality doesn't change. Of 78 CIOs and other senior IT subscribers we surveyed at our Premier 100 IT Leaders Conference last month, all but two said the format change would have no impact, or in some cases a positive impact, on their readership.

So, why the change? Was this a decision driven by a conviction that we'll be able to serve you better as a magazine than we have as a news tabloid? No, it wasn't. It was driven, more than anything else, by financial considerations.

The fact is, it costs more — a lot more — to produce a tabloid-size publication than it does to produce a magazine-size publication, because of the differences in printing, paper and postage expenses. Like just about every other publication around, we've had to cut print costs because advertisers are shifting more and more of their ad dollars from print to online. It's a simple fact of publishing life.

Another simple fact is this: The commitment to quality you've come to expect from *Computerworld* is sacrosanct, and it will be preserved regardless of format. We're looking forward to proving that as we begin our next 40 years.

Don Tennant


THORNTON A. MAY

# Tom Sawyer, IT and the 'Free' World

**MANY OF us thought that the great chasm that divided us into free and not free** ceased to be a model of the world order about the time that the Berlin Wall fell. Politically, that's true, but a similar chasm is developing today in the worlds of business and IT. In fact, any IT professional who is not thinking in terms of free vs. not free is behind the times. You need to polish your strategy lens and recalibrate your business model. You need to get busy giving stuff away and getting it for free.

Companies — and their IT shops — that are in tune with the times embrace the idea of "free"; those that don't are proto-Victorians clinging to notions of proprietary technology and information. That's the kind of statement that can make the bean counters among you go into shock, but you have to realize that free is a two-way street. Organizations that choose to live in the free world don't just give things away. They also get things for free — from customers, suppliers and the government. Companies that succeed in the free world gain a deep and broad understanding of the entire value chain, including the value preferences of customers, suppliers and society.

Capitalism requires multiple viewpoints operating simultaneously. Every stock trade depends on someone saying, "Time to sell," and a connected party concluding, "Time to buy." It's long been so, but today's capitalists are finally figuring out how to match the inventiveness of that great entrepreneur of 19th century literature, young Tom Sawyer. The hero of Mark Twain's novel *The Adventures*

*of Tom Sawyer* was able to persuade his pals not only to do his work for him, but to pay him for the privilege of painting a fence. Thus, we have the victors of the Web 1.0 wars — Amazon.com, eBay, Google — all differentiating themselves from the competition in their ability to get customers to paint a part of their fences. FedEx does the same thing for data entry, and Burger King and McDonald's have turned all of us into soda jerks and busboys.

These companies are not just trying to rein in costs by harnessing customers to the yoke of their business processes. There are strategic implications as well. Strategy used to be all about finding rich customers. But if Clayton Christensen (author of *The Innovator's Dilemma* and *The Innovator's Solution*) and Chris Anderson (author of *The Long Tail*) are to be believed, the real money today is to be collected not from the heavily contested high end of the marketplace but from the much less contested and all-too-often forgotten low end. As Christensen has said, today's low end is tomorrow's mainstream.

You are going to have to go one better than Alfred Sloan. In 1924, when he was president of General Motors, Sloan developed the brilliant formulation of "a car for every purse and purpose." The result was the concept of model lines — Chevys for the less affluent and the upwardly mobile young, who would prosper and then move up through Buicks and Oldsmobiles and perhaps finally make it to the "Top of the world, Ma!" Cadillac. The lesson: You are going to have to reach out and connect with people who have no money at all.

There's a wonderful expression: "There is no such thing as bad weather; there is just inappropriate clothing." In the emerging free world, there is no such thing as a bad customer; there is just inappropriate pricing, service levels, business models and cost structures.

MICHAEL H. HUGOS

# How to Truly Partner With The Business

**I'VE HAD some interesting conversations in the past few weeks about the role of business analysts and the best practices that most of them currently use for requirements-gathering. And I've noticed a major contradiction between our stated desire to be effective partners with the business and the way we go about gathering system requirements.**

The contradiction is this: Current best practices lead us to gather requirements for a new system by using procedures that, right from the start, cause tension and adversarial interactions between IT and business people.

Current best practices recommend that business analysts go out and conduct one-on-one interviews with system users and stakeholders. The business analyst proceeds to conduct one or several interviews and produces a lengthy (and often incomprehensible) written document, which those who were interviewed must then read carefully and sign. Imagine the impression this makes; the process is about as friendly as being grilled by a police detective. People know that everything they say will be used against them.

Given normal project life cycles, the requirements-gathering process puts business people on the spot. They have to try to predict the future anywhere from nine months to two years out and describe all the possible system capabilities they will need. Then, when the world turns out to be different from what they predicted and they come back with new requirements, we call it scope creep. We shove the hundreds of pages of written requirements back at the users and ask why they didn't think of those other requirements during the interviews. Is this any way for IT and business to work together in a real partnership?

Relations between business and IT people are seriously strained by all of those best practices: the one-on-one interviews, the requirements documents that rely mostly on lengthy text descriptions, and traditional waterfall project life cycles. If we address these three problems, we in IT will go a long way toward establishing the productive and mutually rewarding partnership we say we want.

Instead of one-on-one interviews, business analysts should facilitate joint application design sessions with groups of business users. As people brainstorm and share their ideas, real creativity and outside-the-box thinking can occur.

Instead of writing text-heavy requirements documents, we should rely mostly on graphic formats for capturing requirements. Business process maps can show workflows, entity relationship diagrams can define logical data models, and storyboards of screen layouts can illustrate how people will interact with a system. Words are always prone to misinterpretation, and we all know that a picture is worth a thousand of them. So we should primarily use diagrams and pictures, turning to text only for notes that clarify particular details.

And finally, instead of long system-development life cycles where you ask business people to predict the distant future and identify everything they could possibly need months in advance, use a short, iterative development approach that delivers working systems every 30 to 90 days. This way, business people have to identify only what they need right away, and we in IT give them fast solutions to their most urgent current problems.

Then, as users gain experience with the new tools we have given them, and as the world unfolds (in its often unexpected ways), business and IT people can continue working together to define, design and build ongoing releases of new system features.

Now that is what a real partnership between business and IT looks like.

## WANT OUR OPINION?

More columnists and links to archives of previous columns are on our Web site:
**www.computerworld.com/columns**

# READERS' LETTERS

## Some Like IT Hot

**INFORMATION** technology has always been a tough job ["Time to Reinvent IT," Frankly Speaking, March 5]. Operating systems, networks and applications always change to meet the business environment. However, the pace has increased and shows no sign of slowing down. This consistently changing environment is disconcerting to many people.

However, I and many others enjoy this changing environment. Where else would I get paid to learn and use new technologies? It requires that I commit some of my personal time, but I love doing it. Life is good in the trenches, but only for those who like it. I wish all the best to those planning to leave IT, and I would also like to thank them for making me more marketable.

**Marc Lipnick**
*Independent consultant, Dallas/Fort Worth*

## Breach Hierarchy

**WHAT'S HAPPENING** here in Texas is far worse than when the Veterans Administration or some other agency loses a drive with sensitive information on it ["Texas Counties Illegally Posting Social Security Numbers Online, AG Says," *Computerworld.com*, March 5].

A single lost computer, hard drive or memory drive presumably would be accessed only by one person or a small group, but in the case of counties posting sensitive information online, the scope of the exposure is much greater.

When I go to the county clerk's office, I have to provide some sort of identification in order to access my own records, but anyone can see them online.

**David Roush**
*IT specialist, Department of Veterans Affairs, Lampasas, Texas, david.roush@va.gov*

## An Easier Upgrade

**THE ARTICLE** "Wait! Don't Buy Windows Vista!" [*Computerworld.com*, Jan. 25] states, "Installing any new operating system is time-consuming." While it is true that it is time-consuming to install any Microsoft operating system, installing a Linux upgrade takes less time than doing a simple virus scan on Windows XP. Configuration is just copied from the previous or another installation. I recommend upgrading XP to Linux. It's about as cumbersome as upgrading Windows, but you only have to do it once. Upgrading to the next version of Linux will be (almost) free and (almost) without trouble.

**Johannes Wiedersich**
*Lecturer, Technische Universität München, Bavaria, Germany*

**COMPUTERWORLD** welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 1 Speen Street, Framingham, Mass. 01701. Fax: (508) 879-4843. E-mail: letters@computerworld.com. Include an address and phone number for immediate verification.

GO

Protect The Universe

US PATENT

6,256,664

Symantec/Altiris

SOFTWARE GRAVEYARD

IBM/Tivoli Supercharger

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6,604,130

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Israel

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McAfee/Citadel Ignores 40% of the Computers

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Send SMS into Warp Drive

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6,356,936

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US PATENT

6,263,362

Inspectors

US PATENT

[Without this, security products tend to have terrible security]

6,879,979

Scanning Advisory

US PATENT

[Without this, security products tend to have terrible security]

6,931,434

Patent Infringement

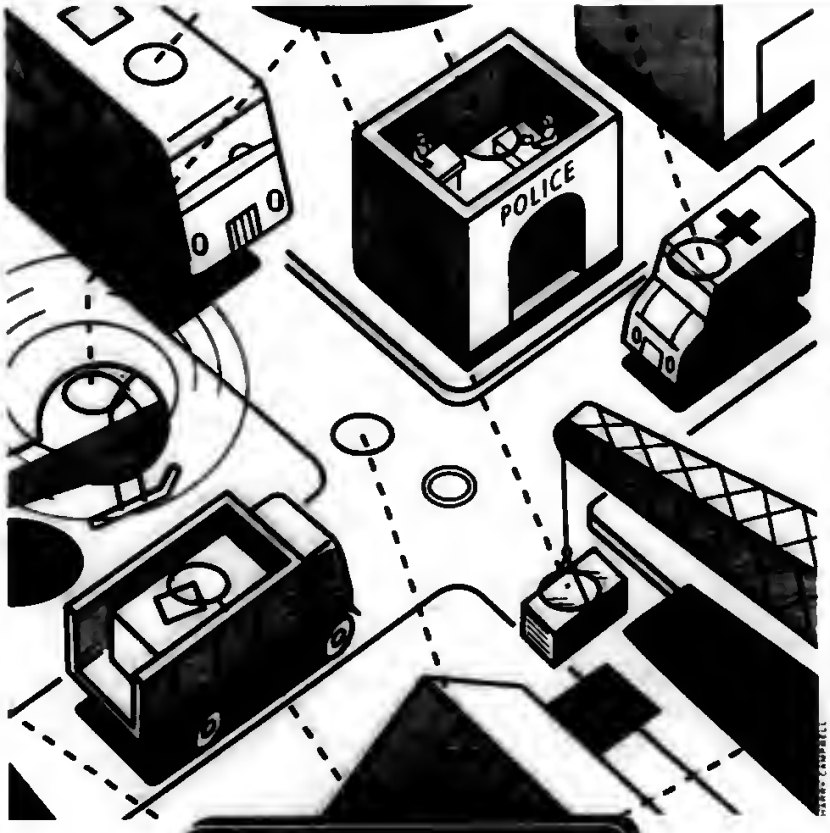
THERE'S A REASON BIGFIX HAS TAKEN OVER THE PLANET!

# STRATEGIES & TACTICS

## Inside



# ON THE CORPORATE RADAR




ORGANIZATIONS ARE HOMING IN ON THE POTENTIAL IMPACT OF GEOSPATIAL TRACKING AND ANALYSIS TECHNOLOGY.

By Sarah Fister

**WHEN CRIME STRIKES** in Dover, N.H., police officers on the scene can get help more quickly than ever before. That's because GPS equipment in squad cars pinpoints the location of each unit. "The dispatchers can see the cruisers moving around and the incidents they're responding to," says Michael Fenton, IT administrator for the department. "It has decreased our response times. The dispatcher now looks to the map displaying locations of all units and assigns the closest available unit."

The department also uses a geographic information system to analyze crime trends and even to schedule officers' beats.

Geographic information systems (GIS) and tools that make use of Global Positioning System (GPS) satellite technology are not just for mapmakers, navigators and military analysts anymore. These technologies are becoming strategic components in a surprisingly diverse array of industries, from construction and trucking to marketing and health care.

"We're seeing a lot of growth, with businesses and government agencies blending geospatial stuff in with other applications," says Dave Sonnen, an analyst at Framingham, Mass.-based IDC.

Here are some examples of pioneering users of geospatial technologies:

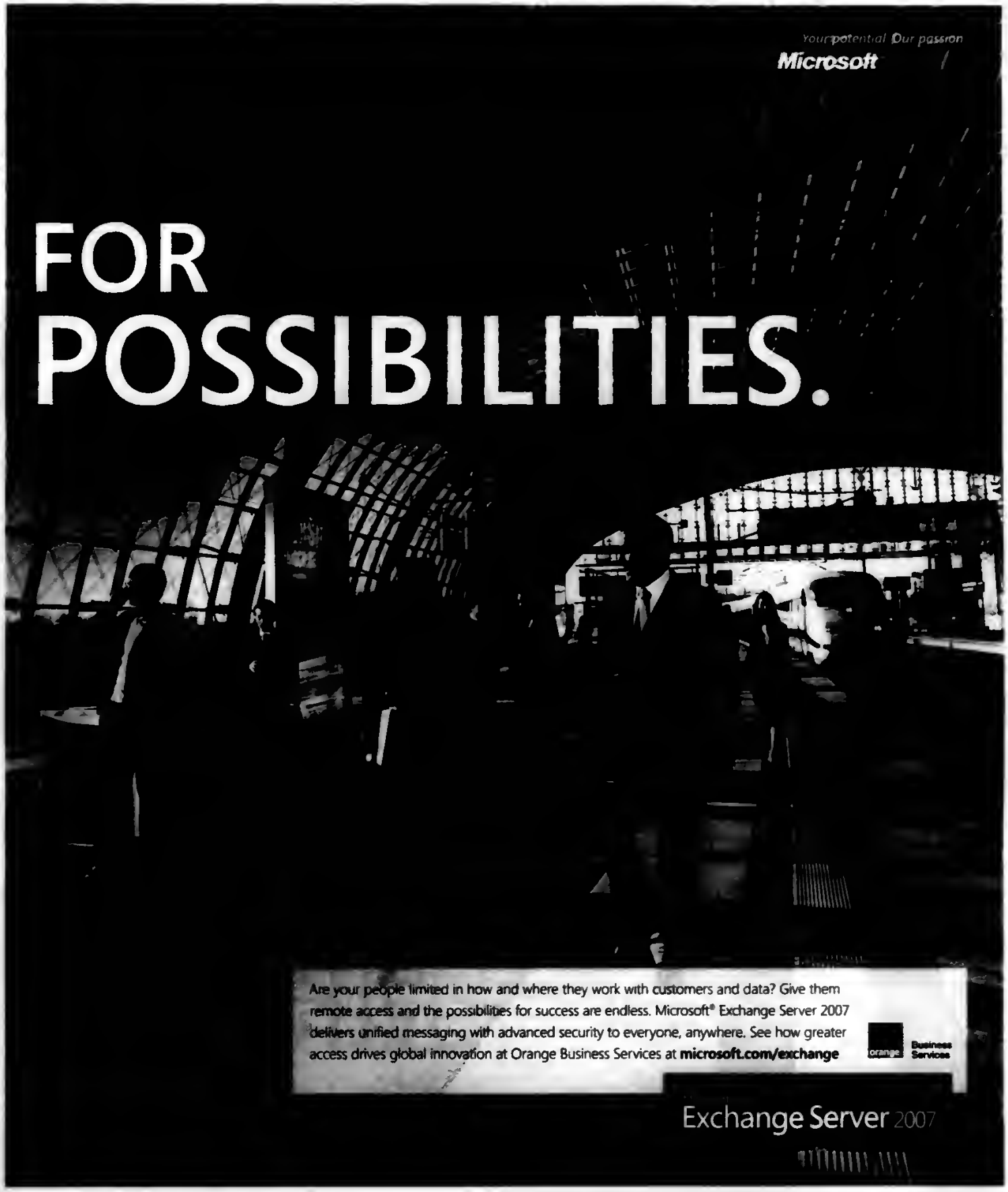
■ **Loma Linda University Medical Center (LLUMC)** in Loma Linda, Calif., uses GPS devices and ArcGIS software from Environmental Systems Research Institute Inc. (ESRI) to locate and dispatch ambulances and rescue helicopters, and to plot the fastest routes to area trauma centers — in some cases reducing response and transport time from a half-hour or more to a lifesaving few minutes. All emergency responders in Southern California can access LLUMC's Advanced Emergency Geographic Information System (AEGIS) via the Web.

■ **Caterpillar Inc.**, a maker of equipment for mining, construction and agriculture, offers its GPS AccuGrade technology, developed in-house, as a feature in its bulldozers, graders and other construction vehicles. AccuGrade tracks a machine's blade location and tells it where to move next based on preprogrammed coordinates. In the past, an operator would base blade movements on measurements written on wooden stakes in the ground. The improved precision translates into higher productivity at construction sites, says Tom Bucklar, North American region manager for machine control and guidance at Peoria, Ill.-based Caterpillar. "GPS has increased productivity in construction [projects] by 40% or more," says Bucklar, attributing much of that to the fact that operators now get accurate measurements more quickly.

■ **At the Dover Police Department**, GIS software from Queues Enforth Development Inc. and MapInfo Corp. is used to map crime trends and schedule beats. Inci-

*Continued on page 26*

# EXCHANGE LIMITS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orange Business Services
Exchange Server 2007

*Continued from page 23*

dent reports appear in real time on a map viewed by dispatchers, along with the locations and status of police vehicles. Later, a graphical analysis of the calls — including the times, locations and nature of the incidents, as well as other details — is used to forecast criminal trends and schedule patrols to help prevent crime and respond to incidents more quickly.

There are about two dozen vendors of GIS applications, including MapInfo, ESRI, Cadcorp Ltd., Autodesk Inc., Oracle Corp. and Intergraph Corp. Many offer vertical-market packages, such as route-optimization software for trucking. There are also open-source GIS products, such as the Geographic Resources Analysis Support System developed by the U.S. Army Corps of Engineers. To add location and tracking capabilities, GIS vendors often partner with GPS receiver and antenna makers, like Trimble Navigation Ltd.

GIS applications can be used with other information, such as demographic data, crime statistics or traffic reports. For instance, LLUMC feeds traffic and weather data into AEGIS, enabling ambulance dispatchers to quickly evaluate road conditions and alternate routes. It also receives live GPS data from fire and police departments, hospitals and emergency medical services providers, so it can identify the closest responder in an emergency as well as which hospital emergency rooms can accept more patients.

"We're probably the first large [health care] system to bring all of those together," says Dr. Jeff Grange, EMS director at LLUMC.

At Edens & Avant, a shopping center developer in Columbia, S.C., GIS manager David Beitzuses ESRI's Business Analyst GIS software and demographic data to map development projects and analyze competing developments, traffic patterns and real estate values.

"We constantly use GIS to analyze new sites and markets — not only to figure out if a site is viable, but also what a good tenant mix would be and how it would blend in with the area," says Beitz.

Beitz is also starting to use GPS tools to map routes for helicopter tours with potential tenants. He tags key areas of the route with GPS coordinates, which are uploaded to the helicopter's navigational system. The pilot can then fly the route without asking for directions, and the tour guide is better prepared, says Beitz.

**GPS has increased productivity in construction [projects] by 40% or more.**

NORTH AMERICAN REGION MANAGER FOR MACHINE CONTROL AND GUIDANCE, CATERPILLAR

## No Shrink-Wrapped Systems

Interesting as they can be, these applications are not plug-and-play. There are often technical problems to address before deploying a geospatial system. One involves the potential for gaps in cellular network coverage. While GPS receivers can usually get signals from the GPS satellites — with occasional blips in tunnels or deep valleys — they may not always be able to relay them back to the home office over a cellular network. "The network might go down for 30 minutes for upgrades," notes the Dover Police Department's Fenton. "Or there could be a problem with a cell tower. We have no control over that."

Standard GPS technology is accurate to within a few yards, but that may not be precise enough for certain uses. For example, GreenLeaf, a food distributor in the San Francisco Bay area, uses ESRI's ArcLogistics route-mapping software and GPS devices on its trucks to help it plan routes.

"We can see how the driver actually ran the route and go back and make adjustments," says Frank Ballentine, vice president and general manager of GreenLeaf, noting that the system also enables the company to tell customers where their deliveries are at any given moment.

The system generally works smoothly, but it can get confused when delivery sites are close together. "It's pretty accurate, but if there are two or three restaurants in one block, it won't show the deliveries for all of them," says Ballentine.

With more sophisticated — and expensive — correction technology, systems can be accurate to within one meter. Even greater precision can be achieved when tracking movements within a confined space — such as a construction site or a harbor (see story at left).

Another potential challenge is integration. John Handler, president of Truck Dispatching Innovations Inc. in Chicago, says that organizations often must do some integration work to get GIS and GPS tools to work together or to link them with other applications that must send or receive geospatial data. "This is not a black-box solution," notes Handler.

Sometimes just getting two sets of GPS coordinates to match can be difficult. IDC's Sonnen notes that data in maps often doesn't mesh precisely with data from GPS receivers. With more than 100 national mapping agencies as well as private suppliers producing maps of everything from city streets to waterways, there is a great deal of diversity in the granularity of image resolution. "You mash two together and then decide how accurate it is," Sonnen says.

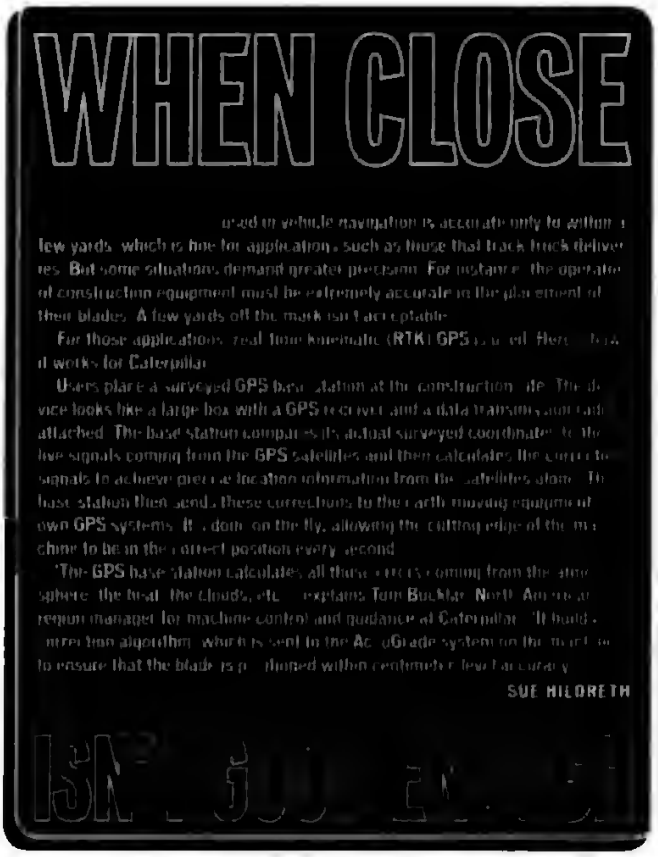
Another challenge is that there are a variety of formats for GIS data, but that problem is slowly being resolved. Many, though not all, vendors now support the Geography Markup Language (GML) developed by the Open Geospatial Consortium, says James Brayshaw, director of sales and market development at Ordnance Survey, the U.K.'s national mapping agency. He believes the adoption of GML will help eliminate many data integration problems.

"If the data is not provided in a common format, then you have to merge them all together and put them into a format to work in my application," says Brayshaw. "Some of the issues of data integration and coordination are going away, but there's still a lot of information out there that's not in GML format."

In addition to developing GML, the Open Geospatial Consortium is working on several other standards for interoperability among GIS applications.

While the GIS software market overall is growing at just 5% or 6% annually, says Sonnen, the market for GIS and GPS technologies embedded in other applications, such as for insurance underwriting or utilities management tools, is experiencing a much bigger growth surge — around 25%.

Consumer use of GPS and GIS has shot up as well, thanks to free services like Google Earth, which have increased public awareness of geospatial applications. "Most of the major systems integrators have Google Earth practices now," says Sonnen. "Companies want to keep track of their customers, their facilities and assets, and their transportation routes."




*Hildreth is a Waltham, Mass.-based writer specializing in enterprise IT technologies. You can contact her at Sue.Hildreth@comcast.net.*

# SO YOU WANT TO BE A DIGITAL DETECTIVE?

BY GARY ANTHES

THE MAN was careful to cover his tracks, erasing e-mail messages and other incriminating documents. He sent especially sensitive messages to his prospective employer via a Web-based e-mail service, not the corporate e-mail system of his current employer. And with good reason: The man had landed his new position by promising he'd bring trade secrets from his former job.

Unfortunately, the former employer didn't suspect anything until months after the rogue employee had left. By then, his PC had been erased and given to another employee. The prospects of finding evidence of suspected wrongdoing seemed bleak.

But forensic investigators at Huron Consulting Services LLC in Chicago had a few tricks up their sleeves. Using special tools, they found e-mails still on the former employee's hard drive — messages that he had deleted but that had not yet been written over. Investigators even found some e-mail sent via the Web-based service, because Web pages containing the messages had been automatically cached to the PC's disk.

"The nature of those messages was such that it was clear that he knew — and his new employer knew — that he was going to bring documents and ideas to help start a new business," says James Zinn, managing director of Huron's digital evidence practice. "The case settled in favor of our client because of that evidence."

A combination of forces — including changes in the legal and regulatory climate, an increase in the amount of electronic information that is stored and communicated, and the general litigiousness of society — has pushed computer forensics from the back rooms of law enforcement agencies into mainstream corporate America. "There's been an explosion in the use of computer forensics for traditional investigations, but also now in more routine civil litigation," Zinn says.

In December, the government updated its Federal Rules of Civil Procedure to require companies appearing in district courts to be much better prepared with electronic evidence. "They have to know what electronic information they have, essentially at the beginning of the case, and if they don't, they can be sanctioned," Zinn says. "That has increased the need for people who understand corporate IT systems and what data exists and how to retrieve it quickly and in a forensically sound manner."

**THERE IS** as yet no licensing requirement for computer forensics professionals, and only a handful of schools offer degrees in the subject. Employers and clients looking for assurance that practitioners know their stuff may look for these certifications:

- **Certified Information Systems Security Professional (CISSP)** is a vendor-neutral certification governed by the International Information Systems Security Certification Consortium in Palm Harbor, Fla. Candidates must have four years of professional experience in information security or three years' experience and a college degree, and they must pass a written examination.
- **The Certified Computer Examiner** credential is awarded by the International Society of Forensic Computer Examiners, a private company affiliated with Key Computer Service LLC in Brentwood, Tenn. Candidates must have 18 months of experience or training, and they have to pass an examination.

– GARY ANTHES

So who are these digital detectives? People with various combinations of IT, audit, legal and law enforcement skills are well positioned for careers in computer forensics, says William L. Farwell, director of forensic and dispute services at Deloitte Financial Advisory Services LLP in Boston and a former investigator of Medicaid fraud. "We look for people with law enforcement and government backgrounds, but we also balance that with people with computer science and computer engineering backgrounds, because we can teach the skills back and forth across the two groups," he says.

Farwell says that his investigations are often done jointly with a client's IT department, but sometimes the IT department itself is the target. "We've had cases where they were running multiple businesses within the company — their own pornography Web sites, anything you can imagine."

## Decoding Crime

Staying a step ahead of those who would hide digital evidence requires use of the latest technology, Farwell says. For example, Deloitte recently built an "advanced decryption center" in Boston that uses a variety of techniques for breaking password protections and unscrambling coded messages and documents. Farwell says a typical case today might involve examining 4,000 encrypted files created by 40 users.

Nick Robertson, vice president of technical services at Forensicon Inc. in Chicago, specializes in electronic discovery, the phase of civil litigation in which opponents gather electronic evidence that they hope will support their cases. He has an MIS degree.

"Having a solid IT background — not only in software but hardware as well — is crucial for this work," Robertson says. "In order to properly preserve evidence, you need to go out and properly handle large servers, desktops, laptops. You need to remove hard drives, make images of them and properly document everything you do."

But technical skills alone aren't sufficient, Robertson says. Computer forensic detectives must be able to write clearly and argue their conclusions persuasively and with confidence — often in court, facing hostile attorneys. And you have to be ready for anything. For example, he says, "you have all these great facts and details. Then you go to court and the judge asks, 'How does a computer work?' That seems an easy question, but it's not."

The pressure can be great and the deadlines punishing, Robertson adds. "You may need to go in at night when no one is around and pop a hard drive out of a machine and pretty quickly dig up some information. It's not for the faint of heart," he says.

And there's a lot of last-minute travel, says Zinn, "so it's not a very predictable schedule."

"I'm not the sort of person who can sit still, so **this is an exciting role.**"

**DYAN DECKER,** PARTNER, PRICEWATERHOUSECOOPERS

"**Having a solid IT background** – not only in software but hardware as well – is crucial for this work."

**NICK ROBERTSON,** VICE PRESIDENT OF TECHNICAL SERVICES, FORENSICON INC.

But the unpredictability is just what Dyan Decker likes about the computer forensics work that she does. "It's the constant changing nature of what we do, and part of that is the changing technology, both hardware and software," says Decker, a partner at PricewaterhouseCoopers. "I'm not the sort of person who can sit still, so this is an exciting role."

Decker says that nowadays, the smoking gun in a litigation case is most likely to be found by computer forensics. In fact, she says, the day is coming when what is now often called "electronic discovery" will be just "discovery," because very little evidence exists solely on paper anymore. ▸

# Management BY Promises

**Q&A** *In many organizations, customers hurl requests at IT like paperboys chucking newspapers onto doorsteps, says* **Donald N. Sull** *in this month's* Harvard Business Review. *This lack of interaction between service providers and customers doesn't lead to the kind of commitment that gets projects done. It's no wonder that managers told Sull and co-author Charles Spinosa that they can rely on only about half of the business commitments made to them. Sull, an associate professor of management practice at London Business School, talked with Kathleen Melymuka about a better way to get work done.*

**What is a promise in a business context?** A promise is just a pledge that a provider makes to a customer. A CIO can be a customer when requesting data from finance but [is] a provider when promising IT support to the CFO. The roles change based on who's making promises. The starting point is viewing a firm as a network of promises to get stuff done.

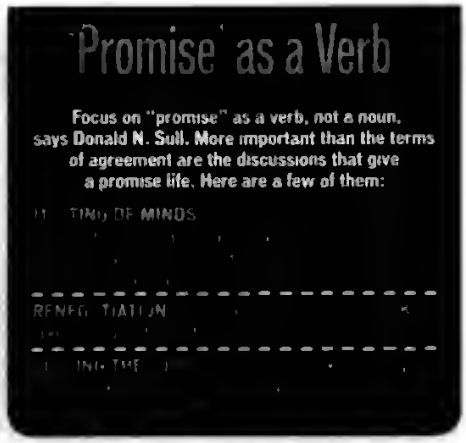
**Why is promise-based management particularly relevant for a CIO in today's business environment?** Because we've got to fight against the tyranny of process. Lean and Six Sigma and TQM are overrunning organizations. I'm not saying those are bad; they are very helpful for a limited set of activities. If I do something a million times a year, I should use a process for that. But process is an obsession now. It's being applied to everything. That's insane. A huge chunk of a CIO's life is not standard. Take a new ERP installation: You need all parts of the organization working together, you can't specify all the requirements in advance, you're not sure how the technology is going to evolve, but you've got to execute. That's not susceptible to process. We're articulating an approach that gives CIOs [the] tools to execute the nonroutine activities that are really what they get paid for.

**You write about five characteristics of a well-made promise. The first is that good promises are public. Why is that important?** When you make a promise in front of people, you've upped the stakes. Your reputation is on the line. That's what leads people to deliver. Also, when you make a promise publicly, you can get good feedback. If the CIO and the head of investment banking are talking through something publicly, the head of retail banking might say, "If you guys are doing that, have you thought about this?"

**You say good promises are active. What does that mean?** Psychologists have found that people who have a chance to actively discuss a promise feel much more bound to deliver. But often what happens is someone comes in and says, "We want this functionality. I'm in a rush; I have to go." If you leave it at that, there's a lot of room for misunderstanding. Customers have to realize that part of their job is investing time to explain themselves well and to check and ensure that the provider has actually understood. It also means that both parties take responsibility for maintaining the conversation throughout execution, as when the CIO comes up with better technology to solve the problem.

**You note that negotiation can sometimes degrade into rebuttals and gotchas. How can I avoid or change that dynamic?** People like to debate about the state of the world. The underlying notion seems to be that if we talk until we have a shared understanding of reality, it will be obvious to everybody what to do. So they talk around and around. Instead of seeking the absolute truth about the world, we need to say, "Here's a request. Can you do it or not?" Then you go to offers and counteroffers. It eliminates a lot of that other discussion.

**You write that good promises are voluntary. I suspect that a lot of our IT readers are smiling at that concept.** By voluntary, we mean the provider has options other than yes. A more powerful member of the organization goes to a less powerful one and says, "You will do this project by May 13 with these resources, and it will have this functionality." There are a couple [of] problems with this. Psychologists tell us that if people are coerced into a promise, they don't feel they own it, and keeping promises isn't ingrained in the organization. At the margins, that matters in terms of quality and delivery. Also, if people aren't allowed to say things other than yes, critical information — such as other commitments that could get in the way of execution — is lost.




**Good promises are explicit and yet constantly renegotiable. How do I strike that balance without chaos?** If two parties are committed to make a promise work, it's not that hard. Typically, you want to have the notion of minimum specification: What's the minimum that we agree is critical? You specify the "what" rather than the "how." One of the most interesting aspects of agile development is that the development team is basically having a renegotiation each time it goes back to the users.

**You say that good promises are mindset-based. Why is it so important for both sides to discuss not only what will be done but why it matters?** If a customer makes a request and doesn't bother to tell you why, you typically conclude, "They think I'm too stupid to understand the why," or "They don't know why themselves," or "They don't think I'm important enough to bother telling." But if people agree that something matters, they're more likely to nudge it up their internal priority list. And if you understand what the military calls the commander's intent, you can often figure out a better way to do it than you initially agreed to. CIOs do this all the time.

**Well, this all certainly seems like a more pleasant way to live.** Infinitely. It's more humane and honest. At the end of the day, even the most elaborate and sophisticated company is a bunch of people making promises to each other. The local butcher tells you he'll have your pork chops on Friday. That's the essence of business. Fundamentally, we're getting people back to something everybody knows.

**If a business promise is part of a web of interdependent promises, promise-based management needs to extend throughout the corporate culture and to outside partners to be effective. How do CIOs get that cultural shift started?** Don't change the world; start with your own team. Do an honest assessment and see if you're doing this. Take a specific project and do a little experiment, and see how it goes. In fact, if people want to try an experiment, I'd love for them to drop me an e-mail [at dsull@london.edu].

# No More {JOB REVIEWS}

Subtle changes in focus can transform the dreaded performance review into an opportunity to build better IT employees, teams and organizations. **BY MARY K. PRATT**

PERFORMANCE REVIEWS are the fruitcake of management. Nobody really wants to give them because everybody knows that nobody wants to get them. And once the unpleasantness is done, the whole rigmarole is put on a high shelf and never thought about again — until the next year. The worst of it is that someday the receiver will probably give that same fruitcake to someone else.

Performance reviews are like that, but they don't have to be. A lot of smart people have given a lot of thought to how to get more out of the review process, and new and better approaches are out there. But many IT managers are still passing around that nasty old fruitcake. Toss it into the trash and try a new recipe. Here's how.

**SET THE TONE.** IT managers at the University of Miami don't do job reviews. They conduct performance appraisals. "This sets expectations" that the process will look forward, not backward, says Stewart Seruya, the university's assistant vice president and chief security officer for IT.

That subtle change in focus can help transform the dreaded review into a look at the future and the employee's role in it. "If people are focused on what we really want to accomplish as a department, we get people committed to the goals," says Laura DeLain, deputy resource director in the IT department at Northwestern Mutual Life Insurance Co. in Milwaukee. "They think about what's important and how they can make a contribution."

**THINK STRATEGICALLY.** Use the performance appraisal to compare employee qualifications against key skills needed in the company, analyst Samuel Bright advised in a recent Forrester Research Inc. report on hot IT skills. This approach enables managers to focus training, set development goals and reward employees who acquire hot skills, Bright says.

**TIME IT RIGHT – FOR YOU.** IT managers do appraisals at various times — the end of the calendar year, the anniversary of workers' start dates or a time that coincides with key decisions, such as setting pay increases. What matters most isn't when you do the appraisal but that you have a good reason for doing it when you do.

At insurer Aetna Inc. in Hartford, Conn., for example, corporate executives set companywide goals as they approach the end of the calendar year, says Ruth Stern, head of Aetna Information Services (AIS) delivery operations. Those goals cascade down into expectations for the AIS group and then into team and individual balanced scorecards. Because these scorecards relate to one another, the appraisals on which they are based are done on a specific schedule, Stern says.

**DON'T REVIEW; MANAGE.** A job review happens once a year, but career management is ongoing. Schedule regular follow-up meetings at set intervals to make sure workers are on track and hitting targets.

At Reston, Va.-based SLM Corp., commonly known as Sallie Mae, IT workers have yearly reviews with at least one midyear follow-up "to make sure there are no surprises and so we can modify goals," says Karen Kotowski, senior vice president of applications development. "It all falls under the framework for managing talent."

**GET A BROAD VIEW.** There are various sources of input for performance appraisals, so don't pick just one. "I don't believe there is a 'best' [type of] review for IT professionals. All types are valuable in their own right," says Cindy Reynolds, vice president of IT operations at Discover Financial Services LLC in Riverwoods, Ill. She favors self-evaluations, since they let the employee and the manager see where their perceptions differ. She also finds 360-degree and peer evaluations useful if they are done anonymously and point out both strengths and areas for improvement.

But be careful, Reynolds warns. "I have observed some that simply provide a forum for criticism, which can be destructive and demotivating."

**TALK ABOUT TOMORROW.** Use appraisals to nurture employee aspirations. At Mount Carmel Health System, employees list work-related goals and professional development aspirations as part of their annual appraisals, says John Lawson, vice president of information resources operations at the Columbus, Ohio-based organization, which is under the umbrella of Trinity Health Systems.

A programmer who wants to move into project management, for example, should use his review to articulate that goal, which might otherwise go unnoticed in the day-to-day grind, Lawson says. Then his manager can help him progress — a key factor in keeping him with the company.

**BE OBJECTIVE.** Setting specific goals ensures accurate assessment of a worker's progress, Kotowski says. Her staffers set measurable objectives as well as more ambitious targets that they call stretch goals. If a worker's goal is to achieve and maintain a certain level of system availability, the year-end numbers will show whether he achieved that. "One of the things that Sallie Mae does extremely well is set expectations against which you'll be measured," Kotowski says. That way, workers "don't spend time wondering."

**BE SUBJECTIVE.** IT employees at Discover Financial Services are judged not only on measurable goals but also on more subjective criteria, Reynolds says. "I judge professional behaviors such as leadership, communication, or planning and organization skills — how the goal is accomplished — just as heavily as the business goals," she says.

For example, if an employee has accomplished a project within deadline and under budget but has created animosities or problems for others along the way, his rating will be mixed, she says.

**USE THE DATA.** Well-executed performance appraisals can yield strategic benefits. At Aetna, workers' objective and subjective performances are evaluated to arrive at a final rating for the year, says Jeff Hughes, Aetna's head of professional development services. That final rating is based on a five-point scale, with 5 reserved for people who far and away exceed expectations. The ratings help the company with succession planning because managers know the 5s are ready to move up, Stern says. And in the big picture, that's the overriding benefit of performance appraisals. "The goal," she says, "is to have the right person in the right job."

*Pratt is a Computerworld contributing writer in Waltham, Mass. Contact her at marykpratt@verizon.net.*

## A DIFFERENT APPROACH TO PERFORMANCE APPRAISALS

**WHEN ONE OF THE** 1,200 IT employees at Northwestern Mutual Life Insurance wants feedback about his performance, he turns not to his current supervisor, but to the resource manager who is charged with helping to guide his work and career.

Because IT workers often perform on different projects under various workgroup managers, "this helps us be consistent with workers' development," says Dave Granger, the human resources coordinator for the IT department.

The company piloted this management model in 2002, starting with the applications area, where there is a lot of movement from project to project.

Resource managers handle more than just annual reviews. They meet monthly with workers to talk about development and training. They also advocate for employees. For example, they might step in if a worker is ready to move on but is being held back by a supervisor who wants to keep him.

Laura DeLain, deputy resource director, is one such resource manager. Like the other resource managers, she is a veteran of IT, not HR. "You can't do the job without some understanding of the IT world," she says.


"We've hired a lot of people from the outside, and they all marvel at the model we've got and what a benefit it is," DeLain says. "They definitely see us as an advocate for them, for their careers, for the job they want to do."

– MARY K. PRATT

# DITA

DEFINITION

**Darwin Information Typing Architecture (DITA)** is a standardized architecture based on the use of XML for creating topic-oriented, categorized content that can be reused in a variety of ways.

BY RUSSELL KAY

DITA USES XML as the basis for designing, writing, managing and publishing many kinds of information, both in print and on the Web. DITA includes a set of design principles for creating "information-typed" modules covering specific topics. The adoption of DITA principles facilitates adapting this type of content for a wide variety of delivery vehicles and uses, including integrated help systems, technical documentation, Web-based product-support portals and instructions.

QUICK STUDY

## The Elements of DITA

A strength of DITA is its ability to be extended to cover new areas of knowledge through specific, targeted document type definitions. DITA also enables the reuse of common design rules and output operations while reducing or eliminating redundancy. This is important, since it allows DITA-based topic-oriented content to be adapted to different formats and uses as new features and delivery channels are developed. For example, a material safety data sheet, an instruction document and an encyclopedia article might all be produced from a single common reference topic.

DITA has a number of features to help with the organization and integration of information.

**TOPIC ORIENTATION:** DITA is organized around the notion of the topic, defined as a unit of information that describes a single task, concept or reference item, or a chunk of information organized around a single subject. Within the DITA architecture, there are three types of topics: concept, task and reference. These are very useful for complex technical documentation where much of the material falls logically into one of these topic types.

The topic is the highest standard structure in DITA. Any structure greater in scope than a topic is usually part of the processing context for a topic, such as a print organizing structure or the navigation system for a set of topics. DITA topics have no hierarchical nesting; any internal organization relies on sections that define or directly support the topic.

The basic building block of DITA is an XML document type definition (DTD) called the topic DTD. A DITA topic has a title, a short description and a descriptive body. Here's what a DITA concept topic definition looks like:

```
<concept id="simpleconcept">
  <title>The DITA concept topic</title>
  <shortdesc>This type of topic provides
  background or orientation.</shortdesc>
  <conbody>
```

**DITA MAPS:** To collect and organize references to DITA topics and indicate relationships among topics, DITA uses a simple mapping mechanism. DITA maps can identify the topics in a document and create tables of contents and related links. Maps can organize topics into hierarchies, tables and groups. Multiple maps can create different products from the same set of topics and can help separate the concerns of managing output and structuring information from the concerns of topic authoring. Here's an example of a DITA map:

```
<map title="Getting Started With DITA">
  <topicref href="authoring.xml">
    <topicref href="simpleconcept.xml"/>
    <topicref href="simpletask.xml"/>
    <topicref href="simplereference.xml"/>
    <topicref href="simplemap.xml"/>
  </topicref>
  <topicref href="specialization.xml">
    <topicref href="topictype.xml"/>
    <topicref href="domaintype.xml"/>
    <topicref href="processing.xml"/>
  </topicref>
</map>
```

**TOPIC REUSE:** To reduce the need to copy content from one place or application to another, topics can be reused in different information models, and the DITA architecture will process them consistently. This is possible because of DITA's flat structure, where one topic is never nested within another.

**CONTENT REUSE:** A fragment of content in one topic or map can be pulled by reference into any other topic or map where the content is allowed. With this type of content referencing mechanism, each element is given a "conref" attribute that can point to an equivalent element in the same topic or in a different one.

**SPECIALIZATION:** By definition, knowledge expands, and DITA allows for new types of knowledge through a process called specialization. Specialization allows DITA users to define new kinds of information — which can be new structural types or new domains of information — while reusing as much existing information as possible. This minimizes the costs of migration and maintenance.

Specialization provides a way to coordinate the centralized control of major projects, such as standard corporate documents, with localized control of group-specific items, topics and content-specific guidelines.

Specialization allows multiple definitions of content and output that are related through a hierarchy of information types and processing routines (also called transforms). As a result, any content can be processed by any transform, as long as both belong to the same hierarchy and comply with the specialization definitions. This makes it possible to extend standard processing routines to new topics while maintaining the advantages of common standards and shared resources.

**CONDITIONAL PROCESSING:** The DITA model allows for the inclusion of metadata and attributes, enabling many content management approaches, systems and search engines to be applied to its content, which makes topics easier to find. It also enables conditional processing — the filtering or flagging of data based on criteria set at the time of processing.

**USE OF EXISTING TAGS AND TOOLS:** DITA builds on current sets of tags, which are XML "labels" that identify what follows. (For example, in "<bold>sample text</bold>," the items in brackets are tags.) It can be used with standard XML tools, from shareware to commercial products, on almost any operating system. Core elements in DITA's topic DTD borrow from HTML and XHTML, and DITA topics can be written to be displayed directly in a browser without needing a specialized formatter or processor, such as FrameMaker or Acrobat Reader.

DITA's extension mechanism allows the use of XSLT and cascading style sheet design features, which many editors and browsers support. Since DITA documents are pure XML, one can use nearly any editor. The DITA Open Toolkit is a set of Java-based, open-source tools that provide a reference for processing DITA maps and topics. It can be downloaded from *http://dita-ot.sourceforge.net*. Commercial packages are beginning to support DITA.

*Kay is a Computerworld contributing writer in Worcester, Mass. Contact him at russkay@charter.net.*

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# Time Isn't Always On Our Side in IT

**This year's early daylight-saving time was a mini-Y2k crisis. Our manager scrambles and comes out OK, again. By Mathias Thurman**

SECURITY MANAGER'S JOURNAL

EVERY ONCE in a while, we find ourselves playing the IT version of *Beat the Clock*. This game involves the clocks in our computers. They always do as they're told, but sometimes we haven't given them enough information. Two cases in point: Y2k, and this year's scramble to update devices that didn't know that daylight-saving time would be instituted on March 11, three weeks earlier than the date they had been programmed to expect.

It seems like only yesterday that I was inventorying my company's security infrastructure, contacting vendors and applying Y2k patches. On Dec. 31, 1999, while all my friends were out celebrating the new year, I was with the rest of the IT department, waiting for the clock to turn and the anticipated catastrophe. When the clock struck midnight, nothing happened. All systems were normal. We had a small office celebration (the CEO provided pizza).

This year's DST crisis was Y2k on a smaller scale. At our company, we took a serious approach, since not only our IT systems, but also the tools that the company makes, depend on the correct time.

In the old days, systems administrators had to manually set clocks when DST arrived in the spring and when it ended in autumn. Nowadays, most modern operating systems have an internal mechanism for ensuring that the time is correct, including an automatic switch to DST. This system is called Network Time Protocol, or NTP. However, some applications don't use the system's internal clock for time synchronization. For example, certain versions of Sun Microsystems' Java Runtime Environment (JRE) have their own implementation of time zones and DST rules. In some cases, we needed patches from vendors to ensure that the DST timetables were updated in specific applications. Without them, as of March 11, an application like the JRE and the Java Virtual Machine would have been out of sync with the operating system clock and other services. The results might have ranged from incorrect time stamps to application failures.

We hired a dedicated project manager for the DST job. His first step was to brainstorm with as many IT people as possible to come up with a comprehensive list of the systems that would have to be reviewed for DST compliance. Unfortunately, the company lacks a robust asset-inventory tool to track all IT assets.

Many of our Unix servers run applications that use the JRE. We had to verify that every server was DST-compliant. This included the operating system, JRE and any other third-party or custom application on the servers.

Accurate timekeeping is essential in the IT security department as well. Take RSA Security's SecurID system as an example. We use SecurID tokens extensively — for administrative access to critical servers, remote access for employees, and internal access for partners and suppliers. The tokens generate a new code every minute, and time synchronization with the central authentication server is crucial. If the time is off by even a minute — let alone an hour — the token won't properly authenticate a user. Fortunately, the vendor assured us that our infrastructure was DST-compliant. Only the system clock needed to be changed, and that was easy, since that system uses NTP.

## Timing Is Everything

Tripwire is another time-sensitive application. We use Tripwire as a compensating control for Sarbanes-Oxley Act compliance and as an intrusion-detection and configuration management tool for our critical servers. It is imperative that when Tripwire detects a change to a critical system file, the details, including the time stamp, are valid. (This isn't really a matter of functionality, but correct time stamps would be very important if we were gathering evidence for a law enforcement agency.) Fortunately, only the Tripwire Management console uses JRE technology, and we didn't have to touch the agents running on the systems we monitor. Tripwire provided a patch, which we easily installed.

We also looked at our Juniper Networks Intrusion Detection and Prevention (IDP) infrastructure. Here, too, time-based services are important, and logs and time-based rules would be affected by the early time changeover. As with Tripwire, IDP would operate without a DST patch, but the accuracy of the reports would be questionable. Like most security managers, I don't like leaving things to chance, and so I availed myself of the official DST project and made sure that all of our security infrastructure was attended to.

The DST project even gave us the opportunity to install some recommended patches to our Solaris operating system. And although physical security isn't my direct responsibility, I contacted the manager of physical security to ensure that all systems under his purview were also reviewed for DST compliance. I'm glad I did, because it turned out that the computers that run the proximity door sensors needed to be patched. Without patches, the logs of contractor access to our buildings would be off by an hour. Again, that's something that would be confusing in an investigation.

The camera systems were also time-sensitive and needed to be patched. We couldn't leave any stone unturned, and the list of assets that needed to be secured kept growing beyond what was determined in that initial brainstorming exercise with the project manager. In the end, firewalls, VPN concentrators and event management systems were among the things we reviewed and applied patches to.

When March 11 arrived, things went off without a hitch. Just as with Y2k, all systems were normal. If only I could say the same about the findings from our recent security risk assessment. I'll tell you all about that next time.

## WHAT DO YOU THINK?

This week's journal is written by a real security manager "Mathias Thurman," whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com, or join the discussions in our security blogs: **computerworld.com/blogs/security**

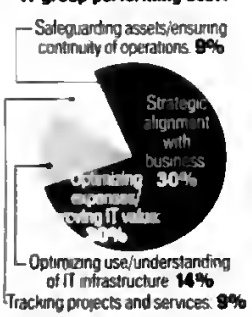
To find a complete archive of our Security Manager's Journals, go online to **computerworld.com/secjournal**

## SECURITY LOG

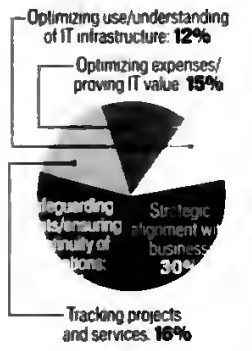
## QUICK HITS

### CIOs Look at IT

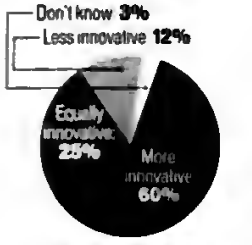
**In which discipline is your IT group performing best?**



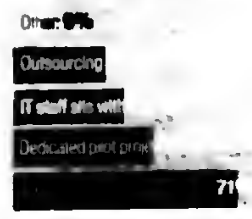

**In which area do you need the most improvement?**




**Is your IT group more or less innovative than your company as a whole?**




**How are you fostering innovation within IT?**
**(Multiple responses allowed.)**




PAUL GLEN

# Sometimes It Takes a Tyrant

SOMETIMES a manager needs to be a tyrant. On rare occasions, anything less is a disservice to one's organization and an abdication of responsibility. Even the most open, consensus-oriented manager needs to be prepared to use dictatorial powers now and then.

Those of you who are regular readers of this column are already familiar with my biases. My philosophy tends to fall toward the collaborative end of the managerial approach spectrum, where the other end of the scale is authoritarian. Knowledge work requires the free flow of information, ideas and, yes, knowledge.

**PAUL GLEN** is the founder of the GeekLeaders.com Web community and author of the award-winning book *Leading Geeks: How to Manage and Lead People Who Deliver Technology* (Jossey-Bass, 2003). Contact him at **info@paulglen.com**

But on some things, I think that a collaborative approach is neither desirable nor appropriate.

Most of you are probably thinking about crisis situations as examples: emergencies during which a coolheaded dictator can marshal the efforts of the masses to save the world. But that's not what I'm talking about. I tend to think that most crises can be managed collaboratively, although certainly in a more directed and tightly coordinated manner than daily operations typically require.

Instead, I think that an appropriate use of dictatorial power is to defend and maintain a collaborative culture — paradoxical but true. Open and collaborative organizations can be relatively delicate. They are especially fragile when they are new or represent an island of trust in a sea of hierarchy. And they can be destroyed by a handful of people — or even just one — who won't participate. Mutual trust can be violated in an instant and may be nearly impossible to restore.

In other words, managers need to use their dictatorial prerogatives to set boundaries on appropriate behavior. Allowing one person's inappropriate antics to continue unchecked can undermine the collaborative culture of a whole group.

There are a few common types of behavior that need to be addressed immediately. They include the following:

**Personal attacks.** Disagreements are an important part of a functioning workplace. People need to be able to have blunt conversations, but turning a disagreement of substance into a personal assault undermines the spirit of trying to do the right thing.

**Unprofessional behavior.** Sometimes the tone or substance of a person's participation lacks the professionalism that the rest of the group expects. It may not be clearly unethical, but it may be questionable.

**Self-serving behavior.** If a group is to be truly collaborative, members need to balance self-interest and group interest. When they conflict, the group needs to come first as often as possible.

**Unethical behavior.** Some self-serving behavior crosses the boundary into the territory of unethical behavior. Good people can succumb to the seduction of conflicts of interest without completely realizing it. Some people can be rehabilitated with appropriate intervention, but others can't.

**Illegal behavior.** Here, urgent action is clearly required. A manager must protect not only his staff but the organization as a whole. Embezzlement, bribes and sexual harassment are not to be treated lightly. If you suspect that illegal activity is going on, your first call should be to an attorney, not the offender or even your boss.

How you use power to intervene depends on the urgency and severity of the situation. Here are four basic approaches to consider:

**Peer pressure.** The softest approach is to ask a peer of the offending person to quietly take him aside and talk to him about his transgressions. This offers the offender a chance to change with minimal humiliation, if he is so inclined.

**Private conversation.** Sometimes you, as the manager, need to have a private discussion with the offender to pressure him to act appropriately. This meeting may be planned or unplanned. Occasionally, you may need to immediately remove someone from a public forum for this private conversation. If that feels like a trip to the principal's office, so be it. That's what it is.

**Public repudiation.** Sometimes behavior is so inappropriate that it requires a public response, not just for the good of the offender but for the entire group to get the message about boundaries of acceptable behavior.

**Banishment.** Sometimes you just need to remove a person from the group, whether by arranging a transfer to another part of the organization or by firing him outright.

Letting inappropriate behavior fester can substantially weaken a collaborative culture. Ironically, the best hope you have for strengthening that culture may be to intervene quickly and forcefully. ▸

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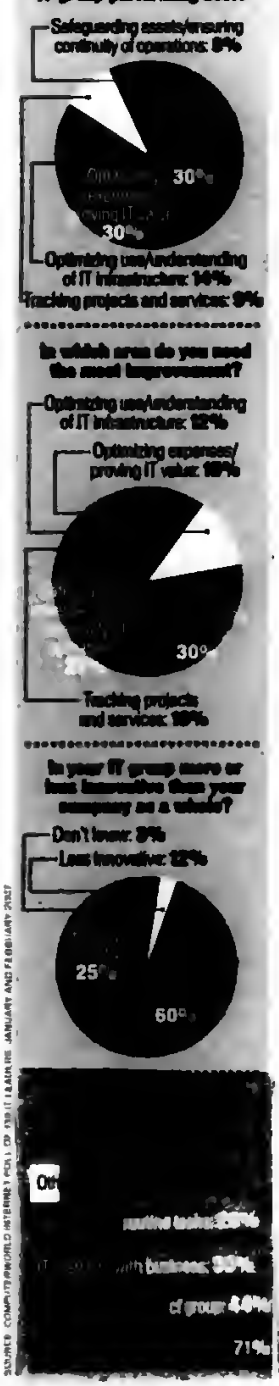


PAUL GLEN

# Sometimes It Takes a Tyrant

SOMETIMES a manager needs to be a tyrant. On rare occasions, anything less is a disservice to one's organization and an abdication of responsibility. Even the most open, consensus-oriented manager needs to be prepared to use dictatorial powers now and then.

Those of you who are regular readers of this column are already familiar with my biases. My philosophy tends to fall toward the collaborative end of the managerial approach spectrum, where the other end of the scale is authoritarian. Knowledge work requires the free flow of information, ideas and, yes, knowledge.

But on some things, I think that a collaborative approach is neither desirable nor appropriate.

Most of you are probably thinking about crisis situations as examples: emergencies during which a coolheaded dictator cao marshal the efforts of the masses to save the world. But that's not what I'm talking about. I tend to think that most crises can he managed collaboratively, although certainly in a more directed and tightly coordinated manner thao daily operations typically require.

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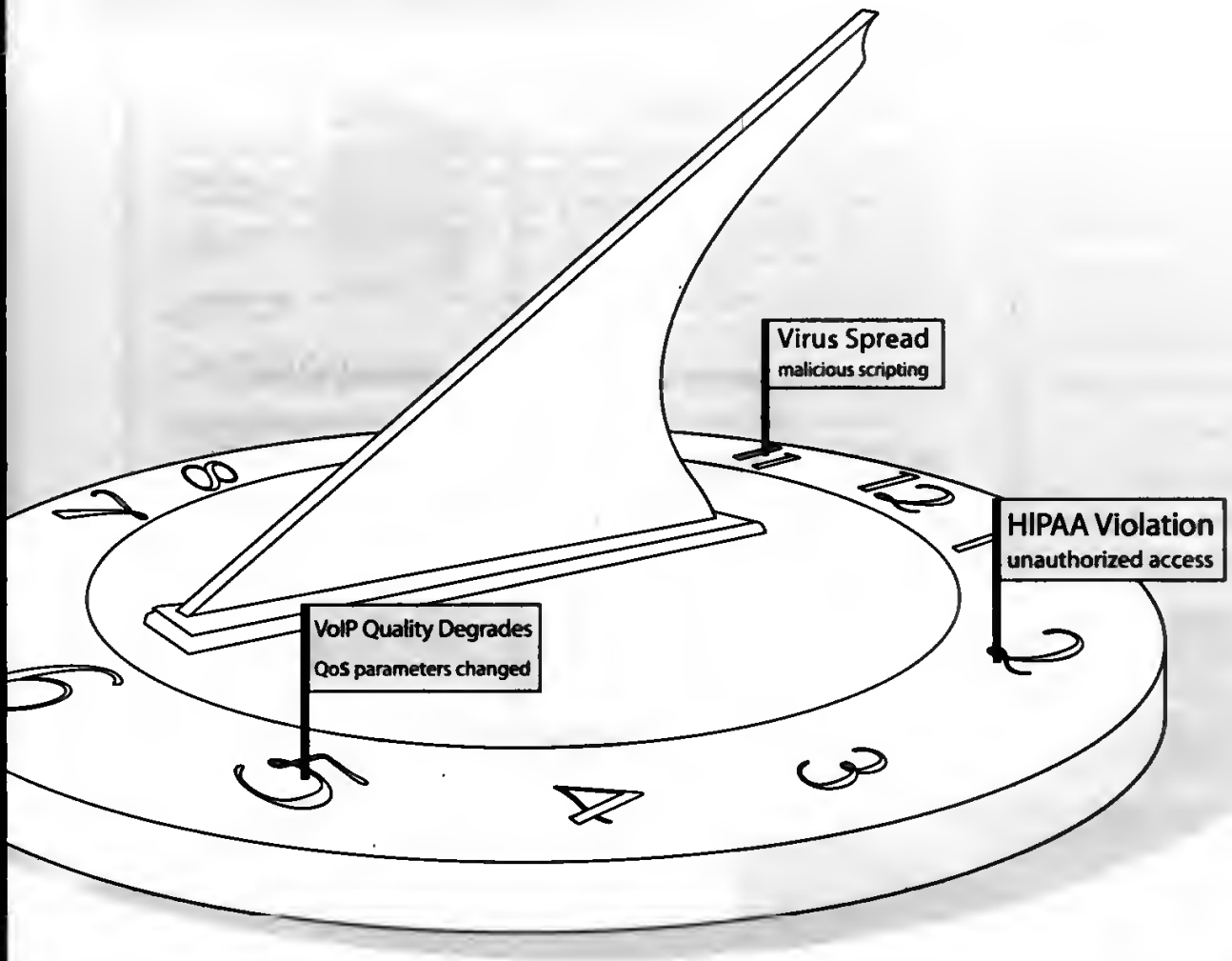


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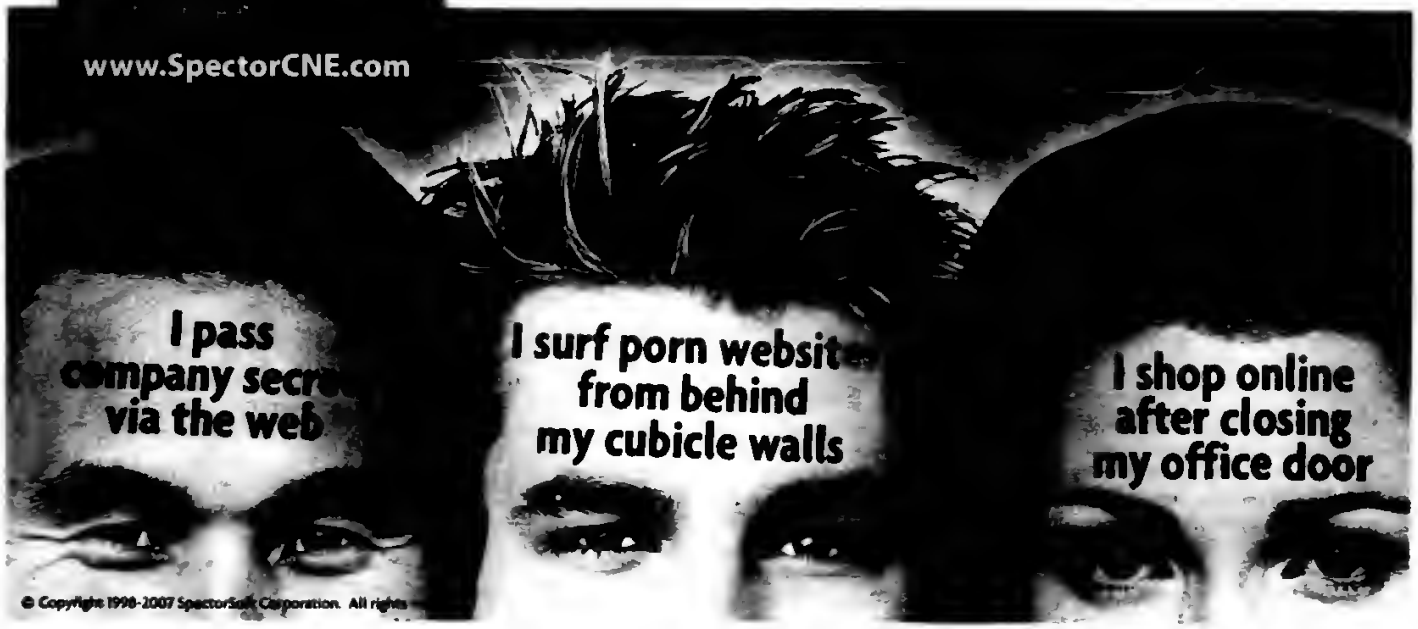

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Technical positions require a bachelor's degree in computer science, engineering or a related field and relevant industry experience We particularly seek applicants with experience in areas such as SAP Oracle Sybase MS SQL Server Java J2EE XML HTML DB2 COBOL Linux, .Net Technologies and WebServices

For our Information Systems and Project Manager positions we prefer a MS degree in related fields such as computer science or engineering and relevant industry experience We will consider applicants with a relevant bachelor's degree and significant industry experience for these positions.

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Computer Programmer Program systems to improve its capabilities Must have Bachelor or Master or equivalent and prior experience in job offered or related field May required travel Please send resume and salary history to 5353 N 16th Suite 400 Phoenix AZ 85016-3205 Attn HR

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Business Development Manager: Conduct market estimates, segmentation & prepare strategies for automotive transportation and manufacturing industries. Liaise with client managers, monitor and manage sales pipeline, direct offshore support teams. Aid & monitor proposal preparation, transition and project kick off; quality & productivity of projects. Establish business plans, qualitative and quantitative objectives, generate new revenues and achieve revenue targets. Maintain & manage client relationships. Collaborate with other units in providing integrated sales solutions to customers. May have regional assignments. Must have BS degree in computer sci/technology or engineering field & 5 yrs. exp. in business development or client relationship management including onshore/offshore environment or account management. Position location, Southfield MI but must be willing to relocate as long-term assignments nationally. Pls. send resume to Human Resources (Job Ref: LCMH07), Infosys/BPO - Progeon Inc, 400 Crossing Blvd, 1st Floor, Bridgewater, NJ 08807.

Software Engineer I in [redacted], CO under close supervision engage in full-life cycle software development in a client server and multi-tier processing environment. Specifically design and develop systems software for Automated Test Engineering (ATE) for real-time Satellite TV Set-Top box (STB) receivers. Develop device drivers and machine components. Migrate systems. The software runs as Linux, Unix and Windows operating systems. Analyze requirements, create designs and user documentation. Code, test and de-bug, modify and enhance the systems software. Use Visual Studio C ++, C ++ DLL Libraries, COM/DCOM utilities, and RS - 232 communications. Bachelor's or foreign equivalent in computer science, computer engineering, electronic engineering or other engineering field, and working knowledge of full-life cycle software development utilizing Visual Studio C ++, DLL libraries, COM/DCOM utilities and RS-232 communications and of device driver development. M-F 8am-5pm, $59,571/yr. Resumes via fax to 214-237-9116 or via mail Attention D-05180-89041, 700 North Pearl St., Suite 510, Dallas, TX 75201. Please reference 39927019 and D-05180-89041

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Business Systems Analysts. Work with users to analyze and improve upon existing business processes. A Bachelor's degree and experience with Mgt/Pro implementation. Mail all resumes to Attn: Kirsten Olsen, International Paint LLC, 6001 Antoine Drive, Houston, Texas 77091. Refer to job code RP0001 when applying.

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FRANK HAYES • FRANKLY SPEAKING

# Wait Till Next Year

THE HEADLINES last week shouted crisis. "U.S. No Longer Technology King," said one. "Survey Shows U.S. Slipping Globally in IT Use," read another. Sure enough, the U.S. had fallen from first place in the Networked Readiness Index, the World Economic Forum's annual comparison of how well 122 nations use information and communications technology.

The new No. 1? Denmark. Meanwhile, the U.S. plummeted to No. 7, prompting declarations that American innovation is now a disaster and our competitiveness is toast. What a catastrophe!

Well . . . no, actually. What most of the news stories didn't mention — most likely because the reporters couldn't imagine it — is that this has happened before. Twice before, in fact.

In 2003, the U.S. was pushed out of the NRI's top spot by Finland; we ended up at No. 2. In 2005, the U.S. was elbowed out of first position by Singapore, dropping all the way to No. 5.

And when a country is knocked out of first place in three of the six years that the study has been done, there's one thing we know for sure.

That's right: The U.S. *was* in first place the other three years.

It also turns out that, according to the authors of the NRI study, the U.S. hasn't suddenly become a nation of Luddites. We're still the top engine of technology innovation, we have the best higher education system in the world, and it's easy for IT companies to get investment capital and for high-tech start-ups to go into business.

So, what happened to us? The study cites "relative deterioration of the political and regulatory environment," as well as the U.S.'s relatively poor quality of math and science education for younger students.

Then again, that's pretty much what the NRI's authors said when the U.S. dropped out of first place in 2005 — and in 2006, the U.S. was back on top of the rankings. Does anyone really believe the U.S.'s regulatory environment and educational system have swung that wildly — good, bad, good, bad — over the past four years?

Of course not, especially when there are at least two much more credible explanations.

The first: We've got good legacy systems. The NRI study gives heavy emphasis to how much a country's general population uses new technologies such as cell phones and broadband networks. Sure, lots of Americans use those things. But lots don't.

Why not? They don't need them. Unlike most countries, the U.S. has had cheap, reliable telephone service for nearly a century. In much of the world, cell phones were a miracle that cut the time to get new phone service from years to minutes. In the U.S., cell is a tougher sell.

And those cheap, reliable phone lines make dial-up modems a viable alternative to broadband for users who don't feel the need for speed.

We'd probably have much better uptake for hot new technology — and score higher on the NRI — if our legacy systems weren't still so useful.

The second explanation: It's a big world out there. And this year, Denmark, Sweden, Singapore, Finland, Switzerland and the Netherlands scored higher than the U.S. did in the NRI's complex calculations.

Are they gaining on us? Sure. And for us, that's great news. Out in that big world are most of our future customers. We *want* them to be wired; that's how our marketing people will sell our products to them.

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It may bruise our national pride to watch other countries climb the rankings when we don't, and it's no consolation that India and China lost rank too. If being No. 7 prods us to improve math and science education and make government more tech-friendly, so much the better.

But is it a catastrophe? Hardly. We're not getting dumber. The rest of the world is just getting smart too.

Besides, remember this: Every time the U.S. has been bumped from first place, the following NRI survey had us back on top.

Just wait till next year. ●

## Full-Throttle IT

Late one evening, pilot fish is filling in on the second shift when a user calls and says his computer is running slow. "Can you shoot some high-end memory over the system?" he asks. You mean you want a memory upgrade? asks puzzled fish. "Nah, can't you just shoot me some high-end memory over the system to make my computer faster?" Fish noisily taps a few keys. How's that? he asks. User: "Yeah, it's running a little better." Says fish, "I told him I could only throttle it up halfway and that he should call back tomorrow to request a 'full throttle.' Three days later, the regular second-shift operator saw me and said, 'You jerk.'"

## SHARK TANK

### Emergency!

User pilot fish brings an emergency request to an IT meeting: He has two servers that need to get into the nightly backup regimen ASAP. Somehow they've slipped under the radar, and there's now no current backup for several hundred gigabytes of data. Manager: "I'm sorry, this does not meet our emergency criteria. I'm going to have to downgrade your request to routine." Fish: "We have an hourly-spool Pavilion upgrade take four to six business days. What if we lost a disk volume tomorrow? We wouldn't be able to recover!" Manager: "Oh, that would be an emergency."

### Emergency – Not

Frantic call comes in for support pilot fish: According to the office manager of this remote site, a user was just electrocuted by her mouse, and the office manager wants an IT guy there now! "Dear IT guy drove 25 miles," fish reports, "only to find out that the diamond in dialysis had pierced and due to low blood sugar. But you know how dangerous those killer mice can be, their bosses at high voltage!"

### Doing the Right Thing

IT director pilot fish at this school is conveniently told of when enrollment takes a big drop, and he's a little bitter about the whole deal. So he's surprised to get a call a few months later from his ex-boss, asking if fish was busy and for a few minutes. "My duties would have included full administrative access in order to reset passwords and troubleshoot problems," says fish. "I tried explaining to my ex-boss the concept of disgruntled employees and system security, but I'm not sure he understood. I declined on the grounds that it would be unprofessional."

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